

FOREIGN ACQUISITION OF SEMI-GAS SYSTEMS

HEARING

BEFORE THE

SUBCOMMITTEE ON SCIENCE, TECHNOLOGY, AND
SPACE

OF THE

COMMITTEE ON COMMERCE,
SCIENCE, AND TRANSPORTATION
UNITED STATES SENATE

ONE HUNDRED FIRST CONGRESS

SECOND SESSION

ON

ADMINISTRATION POLICY REGARDING SEMI-GAS SYSTEMS, SEMATECH,
AND THE U.S. TECHNOLOGY BASE

OCTOBER 10, 1990

Printed for the use of the
Committee on Commerce, Science, and Transportation

U.S. GOVERNMENT PRINTING OFFICE

38-590 O

WASHINGTON : 1990

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WEDNESDAY, OCTOBER 10, 1990

U.S. SENATE,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
SUBCOMMITTEE ON SCIENCE, TECHNOLOGY, AND SPACE,
Washington, DC.

The subcommittee met, pursuant to notice, at 9:50 a.m. in room SR-253, Hon. Albert Gore, Jr., (chairman of the subcommittee) presiding.

Staff members assigned to this hearing, Loretta Dunn, staff counsel; Pat Windham, professional staff member; and Fiona Branton, minority staff counsel.

OPENING STATEMENT BY SENATOR GORE

Senator GORE. The subcommittee will come to order. I want to thank all of our witnesses and our guests for being here this morning.

I apologize for the delay in getting started. I am sure that most of you saw for yourselves that we had another proceeding which lasted a little bit longer than we had anticipated, and even though it was a very pleasant experience for us, I do apologize for the delay in getting started here. I want to welcome you to this hearing, which is on the process used by the Bush administration to evaluate the proposed foreign acquisition of Semi-Gas Systems and on the effect that sales like this one are likely to have on the SEMATECH research consortium and the overall U.S. technology base.

The acquisition of this company, Semi-Gas, will cause real damage to America's effort to fight back in this commercial competition, especially with the Japanese, for computers and semiconductors. SEMATECH, which has provided Semi-Gas with key contracts, financial support, and major technical assistance, will be severely damaged by the sale of Semi-Gas to the principal competitors of SEMATECH.

Semi-Gas has been a key part of the SEMATECH team. It would take many months and considerable funding, taxpayer funding, to build up another American supplier of gas handling systems if Semi-Gas does pass into foreign hands.

Certainly, Semi-Gas's association with SEMATECH has been extremely beneficial to Semi-Gas. The company was bought 3 years ago for \$5 million, and now it is likely to sell for \$23 million. What is the difference? Taxpayer financing of key contracts, and taxpayer financing of key major technical support and advice to Semi-Gas. Key taxpayer financing given in order to build up the capacity to compete against the very group now asking the White House for permission to buy this taxpayer-supported endeavor. The fact is that large parts of the U.S. semiconductor equipment sector and the overall U.S. electronics

industry are now being systematically acquired by foreign interests with potentially devastating effects for both U.S. security and economic competitiveness, and the current administration shows little, if any, inclination to question these purchases at all.

The Exon-Florio amendment of 1988 gives the President clear authority to investigate and block foreign purchases if those foreign purchases would impair national security, but out of 400 foreign purchases considered so far, the administration has blocked how many? One. One, out of over 400.

Even when a company is the very last domestic supplier to our Defense Department of a key technology, the administration still seems eager to tell foreign purchasers, fine. It is okay with us. Go ahead and buy the company.

All of this became clear at an August 1 hearing that this subcommittee conducted. Since the August 1 hearing, additional information has come to the attention of the subcommittee about how the administration's Committee on Foreign Investment in the United States conducted its investigation of the proposed acquisition of Semi-Gas.

This evidence suggests that very little technical analysis of the sales impact was conducted—practically none. It suggests that agencies were actually refused permission to conduct site visits to Semi-Gas or to SEMATECH. It is as if the administration was intent on keeping the investigators blind and ignorant, and keeping from them the ability to gather the information needed to evaluate the proposed sale.

The cumulative effects of sales like this on the Nation's defense base, in particular of this sale was not considered, and the administration still has not come to grips with the policy contradiction between its support for SEMATECH on grounds of national security and its willingness to sacrifice the technology developed under the aegis of SEMATECH.

Encouraging foreign investment is one thing. Foreign investment can be good for the United States. In my own State, we welcome foreign plants and the jobs they bring. Allowing unrestricted purchases of key technologies is quite another matter, and allowing unrestricted purchases of companies specifically nurtured and encouraged with taxpayer financing in order to develop technology for the express purpose of competing against a foreign competitive challenge is absurd and ridiculous, and that is exactly what the White House is proposing to do in this case.

At a minimum, our Government should help to find American buyers for firms in trouble, if those firms have been explicitly nurtured and encouraged and helped along for the purpose of being a part of our national effort to improve our competitive base.

No other Government in the world allows its national technological treasures to be sold so easily. The Congress of the United States, reflecting the sentiments of the American people, has said, enough is enough. That is why the Exon-Florio bill was passed. That is why it is now law. But we have to rely on the Executive Branch of Government to implement the laws that are passed.

The Japanese have an appropriate saying for why they block such acquisitions. In Japan, they say, and I quote, "We do not sell our children." Well, this administration does not go by that saying.

This morning I want to explore these issues with our Federal witnesses by asking them how they evaluated the Semi-Gas sale, and specifically by asking them what process they used, what evidence they collected, what policy guidelines they followed, and whether or not anyone in the administration even tried to find an American buyer for Semi-Gas.

I sincerely want to understand what happened in this case. I will lay out my bias in advance of the witnesses' statements. Based upon what I know thus far about this hearing, I think what you did was ridiculous. But I am sincerely interested in trying to understand why you did it. I do not understand.

I am wondering, frankly, whether or not this administration, because it has to borrow so much money from the Japanese every 24 hours to finance a fiscal policy that was underscored by this morning's headlines—the President considers raising taxes on the wealthiest Americans but then wavers and backs off, and again draws the line in the sand.

I am wondering if, because in order to finance that fiscal policy, the administration and the country has to borrow so much money from the Japanese every day that they are just scared to say no. Do we need an America that can say no? Do we need an administration that can say no to the Japanese when they come in and propose to buy one of America's technological treasures? Well, I think we do, and I want to raise the long-term implications of this case, and the question of whether the United States needs another set of policies to guide decisions like this one, a set of policies more sensitive to the Nation's long-term needs.

I do appreciate our witnesses coming this morning, especially on short notice, in the midst of this week's budget turmoil. Some of them have traveled long distances, and some of them do not really want to be here this morning. For all of those reasons I appreciate your presence.

Before I introduce our first witness, let me recognize my colleague, Senator Bryan.

OPENING STATEMENT BY SENATOR BRYAN

Senator BRYAN. Thank you very much, Mr. Chairman. Let me compliment you on your leadership.

I must say that I share the bias you have expressed. At a time when by every acknowledged barometer our technology base is rapidly being eroded, the approval of this transfer, or this sale, in my judgment defies rational explanation, but I do want to hear from the witnesses and get the benefit of their thinking and see if we are tracking on the same wavelength.

Report after report issued from Government agencies indicates the dimension of our problem, and suggests that alarm bells ought to be ringing, and yet other agencies of the Government seem either not to be acting on the same premise, or tuning in on the same wavelength, and in effect rendering decisions that run contrary to what in my own judgment seems clearly to be in the national interest.

So I will be interested, as I know you will, Mr. Chairman, to hear from our witnesses, and let me defer until our time for questions comes.

Senator GORE. Thank you very much, Senator Bryan.

I have a statement for the record from Senator Hollings that I will include at this point.

OPENING STATEMENT BY THE CHAIRMAN

I am pleased that the Committee is holding this morning's hearing on how the Administration's policy regarding foreign takeovers will affect the SEMATECH consortium and the U.S. technology base in general.

In recent years, American industry and government have taken important steps together to develop the new basic technologies that this Nation will need if it is to prosper in the decades to come. SEMATECH is perhaps the best known of these new ventures and certainly a mainstay of U.S. Government efforts to help keep this country competitive in electronics. As this morning's witnesses know, SEMATECH receives \$100 million a year of DOD funding because of the importance of

semiconductors to the Nation's defense. As I understand the situation, Semi-Gas Systems received both money and substantial technical help from SEMATECH, as part of the consortium's continuing efforts to develop world-class, American-owned suppliers for the U.S. semiconductor industry.

However, the administration has approved efforts by Semi-Gas' principal Japanese rival to buy this important SEMATECH supplier. Both the interagency Committee on Foreign Investment in the United States (CFIUS) and the President have concluded that there is no national security impact to sale that, in fact, will cause serious damage to a research consortium funded by DOD on grounds of national security. I do not understand the logic of the President in this case, and I look forward to hearing the explanations. I also hold out some hope that the Justice Department's separate review of the antitrust aspects of this case will lead Federal officials to reconsider the purchase.

But this case raises an issue far beyond just Semi-Gas and SEMATECH. The larger issue is whether this administration, and this Government as a whole, will make a serious effort to maintain a strong and competitive economy, or whether the Government will abandon efforts to ensure the long-term prosperity and security of the American people. In the case of Semi-Gas, I'm not mad at the Japanese; they are simply being good capitalists, doing their level best to eliminate their competition. I am mad, however, at the Government that apparently cares little protecting one of the Nation's premier technology projects or protecting the vital industry supported by that consortium. We need a Government that is willing to compete with the determined industrial policies of our trading partners, not one that abandons America's technology efforts.

In the months ahead, this Committee will continue to do its best to strengthen American competitiveness. This hearing is part of that effort, and I look forward to reviewing the issues raised today.

Senator Gore. Our first witnesses are all here in a panel, and let me just introduce all of you and then call on you in succession. The panel is made up of Mr. John M. Niehuss, Senior Deputy Assistant Secretary for International Economic Policy at the Treasury Department, accompanied by Mr. Stephen J. Canner, Director of the Office of International Investment, with the Department of the Treasury.

The next, the Hon. Tim McBride, Assistant Secretary for Trade Development, Department of Commerce, then Dr. Charles M. Herzfeld, Director of the Defense Research and Engineering Office at the Department of Defense, then Mr. William N. Rudman, Deputy Under Secretary for Trade Security Policy in the Office of Policy at the Department of Defense.

I want to welcome all of you here this morning, and to this panel. Mr. Niehuss, we have got you slated to go first, and appreciate your presence. Please proceed with your statement.

STATEMENT OF JOHN M. NIEHUSS, SENIOR DEPUTY ASSISTANT SECRETARY FOR INTERNATIONAL ECONOMIC POLICY, DEPARTMENT OF THE TREASURY; ACCOMPANIED BY STEPHEN J. CANNER, DIRECTOR, OFFICE OF INTERNATIONAL INVESTMENT

Mr. NIEHUSS. Thank you, Mr. Chairman, and thank you for giving me an opportunity to appear to address some of the concerns raised by the Semi-Gas transaction.

As you have indicated, Steve Canner, the staff chairman of CFIUS, is with me today. With your permission, I would like to submit my written testimony for the record, and to focus on four key points that are made in my written testimony.

The first point relates to the nature and extent of the President's authority to block foreign acquisitions like Semi-Gas. Many of the concerns over the President's decision in the Semi-Gas case are based on a lack of knowledge of the extent of his authority under the Exon-Florio provision.

Senator GORE. Lack of knowledge on the President's part, or lack of knowledge on the part of the Congress?

Mr. NIEHUSS. Certainly not on the President, but just in general. Public, press—

Senator GORE. The public is confused about this matter?

Mr. NIEHUSS. I believe so, and I will give you the reasons why I think so in a minute.

The act gives the President the authority to investigate and block foreign acquisitions for national security reasons. However, the statute sets forth two specific criteria which must be met before he is empowered to act.

First, there has to be credible evidence that the foreign investor might take action, and the statute uses the phrase, "action that threatens the national security," and second he has to find that existing laws do not provide adequate authority to protect the national security. Existing laws include the antitrust laws, export administration laws, and the regulations that the Department of Defense has to protect classified contracts.

The legislative history of Exon-Florio indicated that national security is to be broadly defined, and the statute says, "without limitation to particular industries." However, Congress drew a line between national security and broader commercial and economic considerations.

The legislative history shows that Congress rejected proposals to expand the statute's coverage to include threats to essential commerce and economic welfare. It is clear from the legislative history that the Exon-Florio provision was not intended to be used as an instrument of industrial policy.

Government review of investments should not be used to try to direct the economy or direct the flow of capital to particular companies or industries. The picking of winners or losers, or attaching conditions to foreign direct investment, is not the policy of this administration, and it is not provided for by Exon-Florio or any other law.

It is against this background that CFIUS undertakes its case-by-case investigations of foreign acquisitions. In each case, including Semi-Gas, we look for several things: first of all, credible evidence; secondly, that a foreign entity might take action that would be a threat to national security; and finally, whether other laws are adequate or appropriate to protect national security.

In short, Exon-Florio looks to the behavior of investors. Foreign investors are limited by Exon-Florio only to the extent that they might engage in activity which would threaten to impair national security.

The second point relates to the nature of the CFIUS investigation. Other representatives on the panel will be able to describe in more detail the activities of their agencies. I really want to state, since the chairmanship of the committee and the secretariat of the committee are lodged in Treasury, that the investigation of the proposed Semi-Gas transaction and SEMATECH's concerns was far-reaching and thorough.

We believe that CFIUS provided SEMATECH, which was not a party to the transaction, with ample opportunity to make its views known both orally and in writing. We did obtain technical advice from a broad range of agencies within the Government from Government laboratories which use Semi-Gas Systems. We would question your assertion that agencies were prevented from making their views known on the issue.

Senator GORE. I said that agencies were prevented from making site visits to either Semi-Gas or SEMATECH. You do not dispute that, do you?

Mr. NIEHUSS. Mr. Canner says no agency requested a site visit.

Senator GORE. We will pursue that with Mr. Canner during the questions.

Mr. NIEHUSS. Finally, the CFIUS received a detailed demonstration and explanation of Semi-Gas technology which enabled all of the CFIUS participants to see first-hand how the system operated.

The third main point relates to the focus of the CFIUS investigation. As I indicated earlier, CFIUS was required to determine if there was credible evidence that the new foreign owners of Semi-Gas might take action that would threaten or impair national security. The investigation addressed two main points. First was the protection of proprietary SEMATECH information, and second was the importance of Semi-Gas technology.

With regard to proprietary SEMATECH information, you are aware that Semi-Gas provides a five-man technical team to SEMATECH to provide gas management services at its research facility. SEMATECH had indicated that its principal concern was the confidentiality of proprietary information to which the five-man Semi-Gas gas management team was privy.

Senator GORE. Could you repeat that point? I am sorry.

Mr. NIEHUSS. SEMATECH had indicated that its principal concern was the confidentiality of the proprietary information to which the five-member Semi-Gas gas management team was privy. SEMATECH feared that research results might be made available even inadvertently to Matheson before being made available to consortium members.

As a consequence, SEMATECH stated that if the transaction were consummated, it would be necessary to sever its relationship with Semi-Gas even though SEMATECH would incur considerable loss of research time and money as a result.

In view of SEMATECH's interest in continuing to use an outside gas management team, CFIUS considered, in order to address its concerns about confidentiality, the possibility of a confidentiality agreement similar to that used by the U.S. Government to protect highly classified information relating to defense contracts.

These types of agreements can take a broad number of forms. They include creation of a separate legal entity, creation of a separate board, a voting trust, specific security arrangements, as well as ongoing monitoring. The effect of such an agreement with SEMATECH would be to isolate the gas team from the new management of Semi-Gas so that the new management team would have no access to SEMATECH information through the team.

Nippon Sanso indicated that they would be prepared to enter into such an agreement to address the confidentiality concerns with regard to the gas management concern.

Senator GORE. What kind of agreement?

Mr. NIEHUSS. A confidentiality agreement.

Senator GORE. What kind of confidentiality agreement?

Mr. NIEHUSS. They were prepared to sit down with SEMATECH and negotiate an arrangement that would be mutually satisfactory. As I indicated, there is a broad range——

Senator GORE. After they bought it?

Mr. NIEHUSS. Excuse me?

Senator GORE. After you approved the sale, then they gave you——

Mr. NIEHUSS. Well, I think it would obviously have to be afterwards, but——

Senator GORE. You did not get a commitment on what it would be beforehand?

Mr. NIEHUSS. No.

Senator GORE. Did you consult with SEMATECH on what a confidentiality agreement ought to look like?

Mr. NIEHUSS. I do not think that is our role. I think that is the role of SEMATECH and Nippon Sanso.

Senator GORE. After Nippon Sanso bought the company?

Mr. NIEHUSS. That is right.

Senator GORE. Does that make sense to you?

Mr. NIEHUSS. Yes, perfect sense.

Senator GORE. Go ahead.

Mr. NIEHUSS. It makes perfect sense in that these are——

Senator GORE. I am just trying to see where you are coming from. You see, it does not make sense to me at all. I think that is an obsequious approach to the purchaser of the company to say this is one of our main concerns and you have to satisfy this concern, but go ahead and buy the company and then we will give you complete control over how you satisfy this concern, and if you decide to do it rhetorically and symbolically rather than substantively, then that will be for you to decide.

But we are very happy that you have rhetorically acknowledged that you will work out something which can be labeled a confidentiality agreement after the sale is completed.

Mr. NIEHUSS. Senator, the buyers specifically stated in the record that they were prepared to enter into such an agreement.

Senator GORE. You say "such an agreement". What do you mean by "such an agreement"? "Such an agreement" is what?

Mr. NIEHUSS. Basically, the type that has been used by the Department of Defense.

Senator GORE. Basically the type that has been used by the Department of Defense, but you get no commitment or agreement ahead of time on what it is?

Mr. NIEHUSS. Basically, if Nippon Sanso failed to negotiate in good faith an agreement with SEMATECH, CFIUS would have the power to reopen and reinvestigate the transaction if it was clear that they were not working in good faith.

Senator GORE. After they have already gained access to all of the knowledge that Semi-Gas has, after they have already completed the purchase. It is ridiculous.

Mr. CANNER. May I say a word on this, Mr. Chairman? Perhaps I can try to give you a little more information on this.

When SEMATECH came to us, they expressed their concern about this five-member gas team having access to sensitive information and their fear that it would be passed on to the new management. At that time we discussed this concern with the potential buyer. They were aware of the types of arrangements that the Department of Defense uses, the security arrangements which Mr. Rudman perhaps elaborate on that have been used in over some 50 transactions to protect the most highly sensitive classified information when there is a foreign takeover of that company.

They had obtained a draft of this type of confidentiality agreement from the Department of Defense. We also shared that with the SEMATECH people at a later date.

Senator GORE. After you approved the sale?

Mr. CANNER. The President approved the sale, sir.

Senator GORE. After you signed off and recommended that the President approve the sale, then you shared with SEMATECH the vastly reassuring news that Nippon Sanso had Xeroxed a copy of some other agreement which may or may not apply and which they might or might not be willing to enter into?

Mr. CANNER. No, sir. That is not an accurate reflection of what happened.

First of all, SEMATECH was aware of the confidentiality agreement used by the Defense Department. Matheson wrote them as early as May 23, I believe, indicating their willingness to sit down and discuss this type of arrangement that

was used by the Department of Defense. It is my understanding that SEMATECH did not respond to that request or to a later request. That is the first point.

The second point, sir——

Senator GORE. If I could respond to the first point—and I do not want to interrupt the flow of this hearing much further, but this is an important section of the testimony.

On your first point, what you have said is in direct contradiction to what SEMATECH has said, and I am going to ask the members of this panel to remain when we bring the witness from SEMATECH up to testify next so that we can try to straighten this out.

I would say that the record of our August 1 hearing includes a statement by the head of SEMATECH that SEMATECH was not informed about any such confidentiality agreement and, in fact, they read about it in the Wall Street Journal. That was the way they found out about it.

The key point here is that you received no absolutely no commitment from Nippon Sanso in advance of your recommendation that the sale be approved that they would enter into a specific agreement, and you had no knowledge of what that agreement would be. Is that correct?

Mr. CANNER. No, sir, that is not correct.

Senator GORE. What were the terms of the confidentiality agreement which they committed to sign?

Mr. CANNER. Let me try to back up and answer the first question first about the commitment that was given to us.

When we raised the issue of confidentiality, they made good faith representation to the committee that they would enter into a confidentiality agreement along the lines of the type used by the Department of Defense to protect the most highly classified information that the government uses.

We as CFIUS all felt that these types of arrangements that are quite secure to protect classified information certainly could be used to isolate this five-man technical team from any foreign influence or control and passing on proprietary but unclassified information. Point one.

Second point in terms of the commitment. As I say, there was a good faith representation made to us——

Senator GORE. So it was not a commitment?

Mr. CANNER. I am getting to that point, sir, right now.

Senator GORE. I am waiting.

Mr. CANNER. There was a good faith representation made to us, and Matheson had subsequently taken steps to contact SEMATECH to begin those negotiations, but SEMATECH did not reply.

Third, I would say inasmuch as this was a good faith representation made to us, if somehow they would renege on that deal and say, no, we are not going to negotiate a confidentiality arrangement along these lines, then CFIUS could reopen the transaction if that proved to be the case.

Senator GORE. After the sale?

Mr. CANNER. Yes, if necessary.

Senator GORE. Well, they already have the secrets then; right?

Mr. CANNER. No. Sir, when these classified arrangements are negotiated, they are negotiated after the sale goes through by virtue of the fact that the buyer cannot commit to the seller to undertake things until the deal is done, until the assets pass title.

Senator GORE. But wait a minute. You see, there are three steps here. First, there is the approval of the sale from the White House usually based on your recommendation. There is the confidentiality agreement. Then there is the sale.

You have the approval of the sale and then the sale and then the confidentiality agreement. You have it backwards, Mr. Canner.

You did not get the confidentiality agreement before you approved the sale. You propose that you let the sale go through on what you refer to, charitably, as a good-faith representation, and you are extremely impressed by the fact that they have xeroxed a document relating to some other confidentiality sale. And they did not even commit that they would sign that one. You have absolutely zero knowledge of what terms they will accept. It seems to me that you got taken to the cleaners.

Mr. CANNER. No, sir, I do not think we did get taken to the cleaners. On this confidentiality agreement, we wanted to leave plenty of flexibility——

Senator GORE. You did that all right.

Mr. CANNER. ——for SEMATECH to indicate to Nippon exactly how they would like to have it tailored.

Senator GORE. What leverage did you leave them?

Mr. CANNER. Our leverage over Nippon is that if they should fail to negotiate in good faith as they represented to the committee, even after the sale is done, we can unwind the deal and reopen the transaction.

Senator GORE. Even after the sale is made?

Mr. CANNER. That is the——

Senator GORE. Okay. After they have bought the company and the company's files and the company's contracts and the company's products and the company's equipment, they are in a position to learn everything they want to learn about the company—before they go through with this good-faith representation which you were so impressed with.

Mr. CANNER. No, sir, I do not believe that is correct because the existing technology of SEMATECH and their ongoing relationships that they had with Semi-Gas are already protected by proprietary confidentiality agreements between Semi-Gas and SEMATECH. Those proprietary arrangements cannot be crossed. They cannot be broken or if they are broken, it is under penalty of law.

There was an existing confidentiality arrangement in place already. We looked at that. We said that is not good enough for national security purposes, given the fact that SEMATECH expressed concern about of these five personnel people on the site.

So, to characterize, if I may for one more moment, so to characterize this transaction that the buyer can go in after the sale, raid the files, and take all of SEMATECH's information and do what they want with it, is incorrect, sir, because that information is already protected by proprietary arrangement in place between SEMATECH and Semi-Gas.

Senator GORE. But the information residing with the company would at the point of sale be owned by the purchaser, correct?

Mr. CANNER. Yes.

Senator GORE. So how is it confidential from the person who owns it?

Mr. CANNER. My understanding, sir, is that the information that was entered into between Semi-Gas and SEMATECH under their proprietary arrangements cannot be passed on to third parties.

Senator GORE. But it is not a third party. It is the first party. They own it now. If they buy it, they own it, right?

Mr. CANNER. That is correct, sir.

Senator GORE. So how are they going to keep it confidential from themselves?

Mr. CANNER. The information that predates the sale, as I understand it, cannot be passed on even to the new buyer under the existing proprietary arrangement that SEMATECH had with Semi-Gas.

Senator GORE. With all due respect, Mr. Canneryou are describing a dream world.

We are going to have to move on. And I think this particular point is probably best pursued when we get the SEMATECH witness up here to join the panel. But this is incredible to me, absolutely incredible.

Mr. CANNER. May I add one more point, sir?

Senator GORE. Yes, but then we are going to have to move on.

Mr. CANNER. Yes. Underlying this concern, I think, is a concern that in the Semi-Gas files is information about SEMATECH's technology and that somehow Semi-Gas built their firm on SEMATECH's technology. I do not believe that is correct, sir.

What Semi-Gas did was with their money and with their resources and with their technology. It was not SEMATECH's technology. And part of our investigation was to ask Dr. Noyce, prior to his unfortunate death, about the extent to which SEMATECH technology and co-development was involved in this. And the answer we got was that basically this was not SEMATECH technology. Had any SEMATECH technology been involved in the development of Semi-Gas' gas purification process, the technology would have been jointly owned, not owned by SEMATECH.

Senator GORE. We will pursue this with the SEMATECH witnesses. But let me say that I knew Dr. Noyce well enough to know exactly what his reaction would be to what you have done, Mr. Canner. We will have testimony from the SEMATECH people who have succeeded Dr. Noyce. But I believe I know exactly what his reaction would have been.

This company sold in 1988 for \$5 million; here it is 1990 and it is selling for \$23 million. During the intervening period, it has been doing contracts for SEMATECH and working very closely with them. It does not take a genius to figure out what happened.

Mr. Niehuss, please continue your testimony. And I apologize for the interruption of the flow of your statement. Go ahead, please.

Mr. NIEHUSS. No apologies necessary, sir. I think it is an important point. If I could just make one suggestion. Given the importance of this particular issue in terms of the confidentiality arrangements, it might be useful for the committee to get the views of Semi-Gas and Hercules as well as SEMATECH as to what is covered by the existing confidentiality agreements and what Hercules and Semi-Gas are prepared to do. It is just a suggestion that if you are going to delve into this issue further, it would be useful to get both sides of the issue.

Let me continue my testimony by turning to the fourth point which I wanted to make. That relates to the specific nature of the CFIUS finding and recommendation to the President.

As I noted previously for the President to be able to block the transaction under Exon-Florio, there had to be credible evidence that Nippon Sanso might take action which threatened to impair national security. Nippon Sanso stated their willingness to continue to work with SEMATECH if appropriate arrangements could be worked out.

They indicated their intention to continue to make Semi-Gas technology available to U.S. manufacturers. And they noted their plans to market a new form of technology, a so-called ultra-clean technology, which is used in Japan, through Semi-Gas. In addition, they had invested \$8 million to \$9 million in Matheson in order to serve the U.S. market.

Based on these statements and actions, CFIUS was unable to find credible evidence that Nippon Sanso or Matheson would take action which threatened to impair the national security.

In addition, to the extent that there were antitrust or market concentration problems, CFIUS concluded that existing antitrust laws were adequate to protect national security.

There were no dissenting views in the report which went to the President. Presidential appointees and in some cases, Cabinet officials established agency positions.

Mr. Chairman, before concluding I would like to address one point which you raised in your opening statement and that is the implication that in some way the administration might be influenced in making decisions under Exon-Florio by the need to finance our deficit from foreign sources.

I would simply state that this is not true. This is not a factor involved in CFIUS considerations. As you know, the foreign investment that comes in to finance the deficit is essentially portfolio investment, invested primarily in Government securities, bonds, and stocks. This is determined by broad macroeconomic factors like interest rates, relative savings rates, relative rates of growth.

What we are talking about with respect to CFIUS is foreign direct investment. And it is not involved as a significant factor in financing the U.S. deficit.

In conclusion, Mr. Chairman, I want to state that we are confident that CFIUS carried out its responsibilities in considering the Semi-Gas transaction. All sides were provided an opportunity to make their views known. Agency positions were conveyed to the President, and he made the decision not to intervene in the transaction.

An investment climate is inherently fragile and a long-term commitment. There are dangers in tampering with an investment environment. We must take care not to signal foreign investors that investments may not be welcome in the United States, particularly at a time when competition for capital is intensifying.

In recent years foreign investment has played a significant role in providing benefits to our economy. The preliminary figures for the first half of 1990 show that foreign direct investment in the United States fell to \$10.5 billion, a 72 percent drop from the year before.

It is too early to tell whether this is an aberration or an indication of future trends. However, it does suggest that it is not preordained that the United States will be the country of choice for future foreign investment. It is important to keep this in mind when making decisions with respect to our foreign investment policy.

Thank you, Mr. Chairman. I will be happy to answer questions at the appropriate time.

[The statement follows:]

STATEMENT OF JOHN M. NIEHUSS, SENIOR DEPUTY ASSISTANT SECRETARY,
DEPARTMENT OF THE TREASURY

Mr. Chairman and Members of the Subcommittee: Thank you for this opportunity to appear before you to address concerns raised by the President's July 27, 1990, decision concerning the proposed Semi-Gas transaction. As you know, the President decided not to exercise his authority under the Exon-Florio provision of the Omnibus Trade and Competitiveness Act of 1988 to suspend or prohibit the proposed purchase of Semi-Gas Systems, Inc., a subsidiary of Hercules Incorporated, by Matheson Gas Products Inc., a subsidiary of Nippon Sanso, a Japanese company. With me today is Stephen Canner, Staff Chairman of the Committee on Foreign Investment in the United States (CFIUS).

My testimony will briefly describe U.S. Government policy concerning direct investment, summarize the Exon-Florio provision and CFIUS's implementation of it, and outline CFIUS's consideration of the Semi-Gas transaction.

INVESTMENT POLICY

Decisions with regard to foreign direct investment in the United States are made against the backdrop of an investment policy which has been in place without significant change for 200 years. It can be stated simply: U.S. policy is to welcome foreign direct investors and to accord them the same treatment that is accorded their domestic counterparts. At the same time, we seek liberalization of foreign investment regimes.

Exceptions to that policy limit the right of foreigners to establish or acquire U.S. businesses in a few sectors. These limitations are related to national security, an internationally recognized exception to an open investment policy. They are mandated by law, e.g. the Atomic Energy Act prohibits foreign ownership of nuclear power facilities; the Shipping Act limits foreign ownership of coastal and domestic shipping; the Federal Communications Act limits foreign ownership in radio and television broadcasting; and the Federal Aviation Act restricts foreign ownership of air carriers.

The theory behind our investment policy is that capital is used most efficiently when its flow is guided by market forces unhindered by non-market considerations. This benefits the world and U.S. economies and results in higher standards of living. Our investment policy reflects the reliance on market forces to allocate resources which underlies all of the Administration's economic policies.

The benefits foreign direct investment provides come in the form of jobs, technology, and capital. Our policy is based on those benefits and the recognition that, in the absence of foreign direct investment, our investment rate would be lower and our ability to compete in the world would suffer.

Foreign direct investment is not a large factor in the U.S. economy. Foreign-owned companies have approximately a 4% share of GNP and 11% for manufacturing gross product. They employ 3.6% of the work force and 7.3% of the work force for manufacturing. To provide perspective, the United Kingdom is the second largest host country for foreign direct investment; and a recent issue of the Economist reported that there foreigners own just over 20% of UK manufacturing and that in five years that figure could rise to 40%.

EXON-FLORIO PROVISION

CFIUS's authority to investigate foreign acquisitions derives from the Exon-Florio provision of the 1988 Trade Act. The Exon-Florio provision authorizes the President, or his designee, to investigate foreign acquisitions to determine their effects on national security, and to take such action as he deems appropriate to prohibit or suspend such acquisitions if the President finds that: (1) There is credible evidence to believe that the foreign investor might take action that threatens to impair the national security; and (2) Existing laws, other than the International Emergency Economic Powers Act and the Exon-Florio provision, do not provide adequate and appropriate authority to protect the national security.

By Executive Order 12662 of December 27, 1988, the President designated the Committee on Foreign Investment in the United States (CFIUS) to receive notices and other information, to determine whether extended investigations should be undertaken, and, once an extended investigation had been completed, to prepare a report and a recommendation to the President.

CFIUS members are the Secretary of the Treasury (chair), the Secretary of State, the Secretary of Defense, the Attorney General, the Secretary of Commerce, the Director of the Office of Management and Budget, the Chairman of the Council of Economic Advisers, and the United States Trade Representative. Other government agencies, such as the Department of Energy and NASA, are included in CFIUS deliberations when a notification raises questions within their area of expertise.

LEGISLATIVE HISTORY

The legislative history of Exon-Florio indicates that national security is to be broadly defined, "without limitation to particular industries." In addition, Congress drew a line between national security, and broader commercial and economic considerations. The legislative history shows that Congress rejected proposals to expand the statute's coverage to include threats to "essential commerce" and "economic welfare."

It is clear from the legislative history that the Exon-Florio provision was not intended to be used as an instrument of industrial policy. Government review of foreign investment should not be used to try to direct the economy or the flow of capital. The picking of winners and losers, or attaching conditions to foreign direct investment is not the policy of this Administration, and is not provided for by Exon-Florio or any other law.

It is against this background that CFIUS undertakes its case-by-case investigations of foreign acquisitions. In sum, we look for: (1) credible evidence, (2) that a foreign entity might take an action, (3) that is a threat to the national security, and (4) whether other laws are inadequate or inappropriate to protect national security.

In contrast to the legal restrictions on foreign investment that limit foreign investors by economic sector, Exon-Florio looks to the behavior of investors. Foreign investors are limited by Exon-Florio only to the extent that they might engage in activity which might threaten to impair national security.

CFIUS ACTIVITY

CFIUS investigations begin when parties to a transaction submit written notification to the Staff Chairman of CFIUS at Treasury. The law provides a framework for a maximum 90-day consideration of notified transactions. This period includes 30 days to determine whether to undertake an extended investigation of a transaction, 45 days to complete an extended investigation, and a final 15 days for the President to make and announce his decision on the transaction. If a transaction moves from the

30-day investigation to the extended 45-day investigation, then CFIUS must prepare a report to the President who decides what, if any, action to take with regard to the transaction.

Upon receipt of a notification, Treasury staff circulates the information to all CFIUS agencies. If a transaction involves an issue or economic sector in which a non-CFIUS agency has expertise, such agencies will be asked to participate in the process. CFIUS agencies consider each case on its merits. CFIUS does not operate with a definition of national security, in the form of guidelines or otherwise. Each agency may emphasize particular factors. These factors are then discussed in CFIUS meetings at the staff and policy level. Transactions are considered in the light of a wide range of considerations so that, at the conclusion of an investigation, each transaction has been thoroughly analyzed from many points of view.

CFIUS has since August 1988, considered a wide range of transactions. They include foreign purchases of U.S. companies with no conceivable relationship to national security as well as acquisitions of defense contractors, some of whose operations are classified.

A few statistics might help to provide you with an idea of the scope of CFIUS activity during that period. Since the 1988 Trade Act became law in August 1988, CFIUS has reviewed over 450 transactions. During 1989, filings with CFIUS represented about 30 percent of the total annual number of foreign acquisitions of U.S. companies valued at more than \$1 million. At the present rate for 1990, the number of notifications to CFIUS will fall a little short of 50% of the total number of those 1990 acquisitions valued at more than \$1 million.

To date, CFIUS has undertaken an extended investigation eleven times. In three of those cases, parties withdrew their notification with CFIUS permission. Eight cases have reached the President's desk for decision. One of those eight cases was the Semi-Gas transaction. In one of those cases the President exercised his statutory authority to prohibit a foreign acquisition.

As mentioned above, in order for the President to suspend or prohibit a foreign investment, he must be satisfied that the two criteria in the Exon-Florio provision have been met. First, he must determine that the foreign interest might take action which threatens to impair national security. Second, he must find that existing laws are not adequate or appropriate to protect national security. These are strict standards, as is appropriate, since Exon-Florio authority should be used only in unusual circumstances.

THE SEMI-GAS TRANSACTION

With that background, I would like to turn to the purchase of Semi-Gas Systems, Inc. by Matheson Gas Products, Inc., a New Jersey subsidiary of Nippon Sanso K.K. The parties to the transaction notified CFIUS of the proposed transaction on April 24, 1990.

Nippon Sanso is a diversified Japanese corporation. Its principal businesses include the production of industrial gases and their sale to semiconductor manufacturers and medical industries, the construction of plants and machinery for industrial gases, the manufacture of welding equipment, and vacuum bottles and outdoor leisure products.

Nippon Sanso's subsidiary Matheson Gas Products Inc. entered into a stock purchase agreement with Hercules Incorporated whereby Matheson agreed to purchase all of the outstanding capital stock of Semi-Gas, a Hercules subsidiary. Hercules desired to sell Semi-Gas as well as other corporate units in order to concentrate on advanced materials and flavors and food ingredients.

Matheson supplies semiconductor materials gases to industry. It is currently upgrading its capability in order to supply gases of higher purity. Semi-Gas designs, assembles, and installs gas systems to control and purify gases used in the manufacture of semiconductors.

THE TECHNOLOGY

Manufacturing integrated circuits (chips) is a chemical process which uses gases as the chemical ingredients. Gas purity is important, especially for high-powered chips. The purer the gas, the fewer the imperfections in the chips.

Competitiveness among semiconductor manufacturers is determined in large part by the ability to produce denser chips with the fewest possible defects. Consequently, manufacturers demand the best cost-effective technology. Semi-Gas provides a "point-of-use" system which purifies gases immediately prior to their use in the manufacturing process. Nippon Sanso provides an "ultraclean" system which supplies pure gas and keeps it pure throughout the distribution system which delivers the gas to the work station. The start-up costs of the ultraclean system are greater than those for the point-of-use system, but the ultraclean system typically produces chips with fewer defects. The two systems are not mutually exclusive; they are used together.

Semi-Gas's system is state-of-the-art and Semi-Gas has demonstrated its ability to integrate and manage an efficient gas system. Its products are not classified, nor does it have classified contracts with the government. Semi-Gas is in the business of selling gas systems; it does not normally provide gas management services to its customers, but will do so if asked. Thus far, only SEMATECH uses gas management services provided by Semi-Gas personnel. SEMATECH is a government-supported research consortium of U.S. semiconductor and equipment manufacturers that conducts research for the benefit of U.S.-owned member companies.

Gas purification and management systems are not limited to the United States; they are commonly used world-wide in the manufacture of integrated circuits. For example, Semi-Gas has sold monitoring systems to Hyundai and other systems to Japan.

CFIUS INVESTIGATION

In accordance with the provisions of Exon-Florio, CFIUS set out to determine if there was credible evidence that the new foreign owners of Semi-Gas might take action which would threaten to impair the national security. The investigation addressed two major points: (1) the protection of proprietary SEMATECH information, and (2) the importance of Semi-Gas technology.

With regard to proprietary SEMATECH information, Semi-Gas provides a five-man technical team to SEMATECH to provide gas management services at its research facility. The responsibilities of the Semi-Gas gas team at SEMATECH include making design recommendations and installing the gas system, certifying piping, operating and maintaining the system, maintaining statistics on gas usage and purity, and developing procedures for gas handling.

CFIUS invited SEMATECH to present its views in the course of CFIUS consideration of the transaction. The law requires that CFIUS accord confidential treatment to the notifications it receives. The information is proprietary and market sensitive, and the contemplated transaction is sometimes known to only a limited number of persons. Inviting SEMATECH to the table was, therefore, a step which CFIUS took after careful deliberation. But CFIUS believed that it was important to hear SEMATECH's views, particularly since SEMATECH had taken a public stance against the transaction.

SEMATECH indicated that its principal concern was the confidentiality of proprietary information to which the five-member Semi-Gas gas management team was privy. SEMATECH feared that research results might be made available (even inadvertently) to Matheson before being made available to consortium members. As a consequence, SEMATECH stated that if the transaction were consummated, it would be necessary to sever its relation with Semi-Gas, even though SEMATECH would incur considerable loss of research time and money as result.

In view of SEMATECH's apparent interest in continuing to use an outside gas team, CFIUS considered, in order to address SEMATECH's concerns about confidentiality, the possibility of a confidentiality agreement of the type used by the U.S. government to protect national security information. These agreements, known as proxy agreements, typically provide for the creation of a separate legal entity, a separate board, a voting trust, security arrangements, as well as monitoring. The effect of such an agreement with SEMATECH would be to isolate the gas team from the new management of Semi-Gas, so that the new management would have no access to SEMATECH information through the team. Nippon Sanso indicated to us that it would be prepared to enter into such an agreement to address the confidentiality concerns with regard to the gas management team. Nippon Sanso further indicated that it would be prepared to enter into confidentiality arrangements for any Semi-Gas employees engaged in a relationship with SEMATECH.

CFIUS also considered allegations that after the consummation of the transaction, Nippon Sanso would control a significant share of world-wide sales of gas systems for the semiconductor industry. The Department of Justice indicated that it was considering the antitrust implications of the proposed transaction. No agency was of the view that U.S. antitrust laws were not adequate and appropriate to deal with market concentration or other antitrust issues.

With regard to the importance of Semi-Gas technology, CFIUS concluded that there were alternative U.S. suppliers of the systems which Semi-Gas provided to American industry. Moreover, gas technology is evolving, possibly to a combination of the point-of-use system produced by Semi-Gas and the ultraclean system offered by Nippon Sanso. I should note that the "technology" is a system of gas cabinets, piping, controllers, and chemical purifiers which is available largely off-the-shelf from a number of suppliers. U.S. semiconductor companies use in-house personnel to manage gas systems. SEMATECH is the only Semi-Gas customer which uses Semi-Gas personnel.

CFIUS also considered Matheson/Nippon Sanso's intentions with regard to Semi-Gas. CFIUS was informed that Matheson intended to continue to supply U.S. industry with Semi-Gas systems and to introduce ultraclean products through Semi-Gas. This infusion of new technology has the potential for benefiting American manufacturers. CFIUS did not believe that the introduction of such Japanese technology—which could ultimately lead to fewer defects in chip production—could be construed as an action threatening national security.

Discussions with the parties to the transaction, SEMATECH, and among CFIUS participants were far-reaching and thorough.

CFIUS had the technical advice of the Defense Department's Defense Advanced Research Projects Agency (DARPA) that provides government funding for SEMATECH, the Commerce Department's National Institute of Standards and Technology (NIST), and the White House Office of Science and Technology Policy (OSTP), as well as other technical and industry experts within CFIUS member agencies. OSTP assisted CFIUS in preparing a technological assessment of Semi-Gas, which was concurred in by CFIUS agencies with technical expertise. Additionally, CFIUS contacted Sandia and Lawrence Livermore National Laboratories which use Semi-Gas systems with regard to the transaction.

There were many written and oral exchanges between CFIUS and the parties to the transaction during the investigation. These included a Semi-Gas demonstration and explanation of its gas management technology and a discussion of products in the pipeline. This enabled all CFIUS participants to have an opportunity to see the significant components of the system. While we have made site visits in other cases, we did not believe that it was necessary to do so in this case.

In sum, I believe CFIUS undertook an exhaustive investigation of the transaction. The parties to the transaction were questioned closely, the chief opponent was given a chance to state its case, the views of government experts and users were sought. CFIUS determined to its satisfaction that SEMATECH's confidentiality concern was not insoluble and that the transaction did not threaten the U.S. semiconductor industry.

In the final analysis there was no credible evidence that the foreign buyer might take action which threatened to impair the national security, nor that other laws are not adequate and appropriate to protect the national security.

There were no dissenting views in the report which went to the President. Presidential appointees and, in some cases, Cabinet officials established agency positions.

CONCLUSION

I am confident that CFIUS carried out its responsibilities well in considering the Semi-Gas transaction. All sides were provided an opportunity to make their views. Agency positions were conveyed to the President and he made the decision not to intervene in the transaction.

An investment climate is inherently fragile and a long-term commitment. There are dangers in tampering with such a commitment. We must take care not to signal foreign investors that their investments may not be welcomed in the United States particularly at a time when competition for capital is intensifying. In recent years foreign investment has played a significant role in maintaining U.S. investment levels at a time when the U.S. savings rate has been relatively low. Preliminary figures for the first half of 1990 show that foreign direct investment in the United States fell to \$10.5 billion, a 72% drop from the year before. It is too early to tell whether this is an aberration or an indication of future trends. However, it does suggest that it is not preordained that the United States will be the country of choice for foreign investment. It is important to keep this in mind when making decisions with respect to our foreign investment policy.

I will be happy to take your questions.

Senator GORE. Because I interrupted the flow of your statement with questions, I think it is only fair that I give my colleague, Senator Bryan, an opportunity to ask questions at this point. Then we will attempt to finish the rest of the panel.

Mr. McBride, I see you are ready to go. If you would hold up just a minute, I did want to make this one brief comment about the financing of the deficit. I appreciate your attempt to address that, but I was not saying in my earlier comment that I thought the purchase of Semi-Gas was a direct contribution to financing the deficit. Perhaps you missed the point I was trying to make.

The need of the administration to have continued willingness on the part of Japanese financial institutions to purchase our debt instruments to finance our deficit might well make the White House and the President himself obsequious in reacting to other requests from the Japanese for approvals for purchases like the one that was requested here. I am not, I assure you, confused about a difference between direct investment and financing of the deficit.

Mr. NIEHUSS. Well, Mr. Chairman, not to prolong it, but I was trying to address that point and say specifically that that was not a factor in the CFIUS or the President's decision.

Senator GORE. I heard that.

Mr. NIEHUSS. The flow of portfolio investments is determined by macroeconomic variables, and a decision on a case like this would not influence the flow of investment capital into the United States.

Senator GORE. Well, the White House, I believe, has bent over backwards for some reason to try to give the Japanese the benefit of the doubt, even in cases when it is not deserved. I do not think that would happen if they were so confident that macroeconomic variables were the only factors determining the fiscal relationship between the United States and Japan.

Senator BRYAN. Mr. Chairman, thank you very much for your courtesy. May I say that I have found the colloquy between you and Mr. Niehuss nothing short of astonishing. I would like to take a couple of minutes to see if the information that I and other members of the Congress have is accurate and if we are on the same wave length, as I said earlier.

Mr. Niehuss, the Department of Commerce issues periodic reports with respect to our competitive position with other countries in the world. A report by the Council on Competitiveness, based on Commerce Department data, and dated 1987 indicates, with respect to semiconductors and the share that U.S. semiconductor companies have of the American domestic market, that the U.S. share of the U.S. market has declined from 89 percent in 1970 to 64 percent in 1987. I have reason to believe that there has been further decline.

My question, and it is twofold, is that information to the best of your knowledge correct? And do you, as one who is presumably as concerned as anyone of us on this side of the table, view that with some alarm?

Mr. NIEHUSS. Well, I cannot confirm the correctness of the information. Maybe the Commerce Department people can if it is in a Commerce report. I assume that the numbers are reported accurately.

Senator BRYAN. Are you generally, by way of information, aware that in the semiconductor market in this country, even if you do not have the precise numbers, that there has been a rather precipitous decline?

Mr. NIEHUSS. Certainly. I have read the GAO report on the Congressional Research Service report.

Senator BRYAN. Then let me ask you, if I may, does that cause you some concern not only as a public official, but as an American citizen?

Mr. NIEHUSS. Of course it does.

Senator BRYAN. We ought to be concerned about that, ought we not?

Mr. NIEHUSS. Of course.

Senator BRYAN. And we ought to at least be mindful of that as we approach those public responsibilities. Would you not agree?

Mr. NIEHUSS. Certainly.

Senator BRYAN. Okay. Now another report—this much more current, 1990, specifically with respect to comparing where we are versus Japanese technology as it relates to semiconductor devices—and this is framed in the context of a report card—indicates that versus Japan, we are behind.

It is not my purpose to ambush you with this, Mr. Niehuss. These are documents, the title of which is Emerging Technologies, Technology Administration, Department of Commerce which did not come out of a think tank. But it has just come out, and you might not have had an opportunity to see it as yet.

My question again is twofold, do you agree with the conclusion in this Department of Commerce document that we are behind in terms of semiconductor technology vis-a-vis the Japanese?

Mr. NIEHUSS. Senator, I am not an expert in the semiconductor technology industry. I have no independent basis for confirming or denying that. I would just have to acknowledge that it is the Government or congressional report, and the information speaks for itself.

Senator BRYAN. In terms of your evaluation of these kinds of decisions which have such critical impact on our country, do you not believe it is relevant to at least inform yourself as best you can, recognizing you have a broad range of responsibilities?

Mr. NIEHUSS. Of course. CFIUS is a broad organization. It is not a single person or a single agency. We do have the benefit of technical experts in the

Departments of Commerce, Defense, and other places who have judgments on those issues.

Senator BRYAN. And in approaching the decision making, the methodology—Mr. Chairman, I do greatly appreciate your courtesy, but I think it is important that we develop a record here, again, as you phrased it, where are the witnesses coming from.

Would it be important for you to make inquiry as to what the status is of the American semiconductor technology in this country vis-a-vis world competitors? It is not a matter only for those who have a great deal of technical background, it is pretty common knowledge that the Japanese are a very aggressive adversary, particularly in the area of semiconductor technology. Is that not pretty general information?

Mr. NIEHUSS. Yes. I think that is true. And I think CFIUS did consider those factors in its evaluation of the Semi-Gas case.

Senator BRYAN. And again, both in terms of your official capacity and as a private citizen, do you view that with some alarm?

Mr. NIEHUSS. Of course.

Senator BRYAN. Now, we are told that since 1987 Japanese firms have acquired 18 U.S. semiconductor equipment and materials firms and have bought equity and technology in 12 others. Is that information you agree or disagree with? Or do you not have that information?

Mr. NIEHUSS. We have the information with respect to acquisitions, yes.

Senator BRYAN. Does that give you some basis for concern?

Mr. NIEHUSS. Sure.

Senator BRYAN. We are further informed that Semi-Gas is America's largest producer and exporter of automated gas-handling systems. Is that information to the best of your knowledge true?

Mr. NIEHUSS. Probably.

Senator BRYAN. A major player. Again, it is not my purpose to quarrel with you in terms of—

And this sale obviously involves either the largest, which is the information we have, or a very large producer—

Senator GORE. The last major producer.

Senator BRYAN. The last major producer.

Mr. NIEHUSS. Sir, we have some disagreement with that. I think there are competing manufacturers. Air Products, I think is a potential competitor.

Senator BRYAN. U.S. manufacturers?

Mr. NIEHUSS. Yes. Maybe not of the same quality, but there are—

Senator BRYAN. Would you agree that they are the largest producer?

Mr. CANNER. I believe they are.

Senator BRYAN. So they are big players, in any event, without trying to quarrel as to whether there may be some other one or not. All right.

Does that give you some concern that here the largest producer is being sold to a company that is part of a Japanese system which is acknowledged by the Department of Commerce to be ahead of us in this technology and which is rapidly making a technology inroad into American markets? Is that a cause for concern?

Mr. NIEHUSS. Maybe I can just agree that the administration generally and myself personally are concerned about the decline of the U.S. semiconductor industry and save a line of questioning. There is no doubt that we are concerned about that. We worry about it. It was a factor in the deliberations.

Senator BRYAN. Well I am pleased to hear that because I do not know you personally. I do not know a good deal about your background. I always presume

that people that have positions like yourself are intelligent folks and operate with the best of intentions. I do not intend to impugn or malign your motives.

But the conclusion here, Mr. Chairman, is incredible. If this information is correct—I mean, how is it in the best interest of America that this company be sold to a Japanese company that is part of a *kieritsu* that includes Hitachi and Nissan, some of the largest industrial competitors that the United States faces in the world?

I do not understand that rational. I will withdraw from further questions because I know we want to get on. But I just want to get the benefit of your thinking, if I may.

Mr. NIEHUSS. Senator, we are concerned about the decline in the semiconductor industry, but we think we should deal with all of the fundamental problems that have led to that decline.

As Senator Gore himself said in the statement on August 1, there are big policy issues affecting THIS: capital cost, a failing U.S. educational system, inadequate Federal investment in civilian research, continued foreign trade barriers. We could go on. Lack of savings and investment in the United States.

There are broader, more fundamental problems behind the decline of the semiconductor industry. I think to focus on a single foreign investment transaction is a little bit like shooting the messenger. You are focusing on the symptom and not the problem when we put the blame for the decline of the semiconductor industry on foreign investment in the United States.

The reports that I read from GAO, from the Congressional Research Service and others, generally agree with that assessment.

Senator BRYAN. Mr. Niehuss, I do not disagree, and I cannot speak for the Chairman, but I think that many of us would acknowledge that there are a lot of underlying causes.

It strikes me that if you have these concerns, and I am very pleased to hear that you do, you have an opportunity to do something about it, and I guess my question is, in approving this transaction, or recommending its approval, it seems to me that your actions belie the nature of your concern.

Mr. NIEHUSS. Senator, I do not think so at all. I think that the Exon-Florio legislation and the criteria which are established under there are not the appropriate vehicle for dealing with these problems.

Senator BRYAN. Well then, can I ask you, have you said well, look, I am darn concerned about these things? You have said that in effect, gosh, I wish this Exon-Florio was broad enough to allow me to really do what I think needs to be done. Have you ever expressed that concern?

Mr. NIEHUSS. No. Perhaps questions on the competitiveness of the semiconductor industry may be best addressed to the Commerce Department or the Defense Department representatives, because I think there is where the fundamental answers to the decline of the semiconductor industry lie. If you look at the findings of the GAO survey on the decline of the semiconductor industry, foreign investment in the semiconductor industry is not given as one of the fundamental reasons for the decline of the U.S. semiconductor industry.

Senator BRYAN. Perhaps not its inception, but you have an opportunity to at least arrest the transfer of a major segment of that industry to our principal competitor. You can do that, in terms of your recommendations to the President.

Mr. NIEHUSS. Even if we wanted to, the provisions of Exon-Florio—the credible evidence, the need for action—do not permit us to do that.

Senator BRYAN. Mr. Chairman, you have been most kind, and I will forebear from further questions.

Senator GORE. Well, let me say that there is a major dispute on whether or not Exon-Florio allows the administration to take action in a case like this or not. We believe that it does, and there is an old saying, where there is a will, there is a way. What is missing here is not the way, but what is missing here is the will. There is no will on the part of the administration to respond.

One other point, before we go on to the next witness. You referred to focusing on a single sale. If this were the only predatory purchase of a key technology company in the electronics food chain, we would not be here.

There is a pattern, and there has been a pattern with regard to semiconductor companies and related firms. When you look at the impact of a sale, do you consider the cumulative impact of similar sales in the same industry, or do you focus only on the individual sale?

Mr. NIEHUSS. Well, we look at the cumulative impact, but we come very quickly to the problem that we mentioned with respect to Semi-Gas, the credible evidence that a foreign entity would take some action that threatens the national security.

Senator GORE. You are reassured on that particular point by the willingness of Nippon Sanso to continue as a member of the SEMATECH family, is that correct? That is what you said earlier.

Mr. NIEHUSS. They stated their willingness to continue to do business with SEMATECH, their willingness to make the technology available to any purchaser, any manufacturer in the United States who wanted it.

Senator GORE. Do you think it makes sense for Nippon Sanso to be a member of SEMATECH?

Mr. NIEHUSS. I do not think Semi-Gas is a member of SEMATECH.

Senator GORE. Do you think it makes sense for Nippon Sanso to be a part of the SEMATECH family, in the same relationship to SEMATECH as Semi-Gas has stood?

Mr. NIEHUSS. I think that is for SEMATECH to decide whether they want them.

Senator GORE. Did you ask them?

Mr. NIEHUSS. I do not think that is our decision.

Senator GORE. Well, in assessing the impact of the sale, it seems to me that you would be curious about that, whether or not—if you are reassured on the critical point of national security, if you are reassured by the assertion by Nippon Sanso that it is willing to stand in the same relationship to SEMATECH and Semi-Gas stood prior to the purchase, then it seems to me you would have some curiosity about SEMATECH's views with regards to that proposed transition, and would SEMATECH feel comfortable with Nippon Sanso standing in the same relation to SEMATECH as did Semi-Gas prior to the purchase.

Mr. NIEHUSS. I think SEMATECH's public opposition to the transaction indicates what their answer to that is.

Senator GORE. Did that concern you?

Mr. NIEHUSS. Pardon?

Senator GORE. Did that concern you?

Mr. NIEHUSS. I think I indicated that we tried to focus on SEMATECH's specific concerns and to deal with them.

Senator GORE. Well, but the reason they were concerned is that they did not think it was at all possible for Nippon Sanso to stand in the same relation to SEMATECH as did Semi-Gas prior to the purchase, correct?

Mr. NIEHUSS. That is their opinion, yes.

Senator GORE. Yet in spite of that fact you continued to gain reassurance on the national security point from the assertion by Nippon Sanso that it would be willing to do precisely what SEMATECH had already said was not possible?

Mr. NIEHUSS. Well, I think there is the question of whether SEMATECH was willing to enter into a confidentiality agreement, and as you indicated, where there is a will, there is a way.

Senator GORE. Well, this comes back to the same point, but you see, that becomes one of several key points, and the simple fact is, you did not consult with SEMATECH about the possibilities of a confidentiality agreement that would be effective prior to making this decision, did you?

Mr. NIEHUSS. Nippon Sanso certainly made an effort to consult with them.

Senator GORE. Did you?

Mr. NIEHUSS. No, we did not, sir.

Senator GORE. That is incredible. It is just incredible. We will go on, and we will come back to this point and others.

Mr. McBride, my apologies for the delay in getting to

STATEMENT OF TIMOTHY J. McBRIDE, ASSISTANT SECRETARY FOR TRADE DEVELOPMENT, DEPARTMENT OF COMMERCE

Mr. McBRIDE. Mr. Chairman, I appreciate the opportunity to discuss with the subcommittee the administration's policy regarding implementation of the Exon-Florio provision of the Omnibus Trade and Competitiveness Act of 1988 and, in particular, the Department of Commerce's role relative to the proposed acquisition of Semi-Gas Systems, Inc. by Nippon Sanso.

As you may know, I had not been confirmed in my current position at the time this case was brought to CFIUS, but I have familiarized myself with the actions taken by the Department of Commerce and will be glad to relate them to you.

My Treasury Department colleague has already provided a comprehensive description of how the executive branch is administering Exon-Florio. I will, therefore, concentrate my remarks on the overall implementation effort made by Commerce with particular references to the Semi-Gas case.

I do want to state at the outset that the Department of Commerce supports the administration's policy of welcoming foreign investment that flows in response to market forces. We firmly believe that government attempts to second guess the market will fail and will do so at considerable cost to our economy. At the same time, exceptions to protect national security have long been and will remain an important feature of our open investment policy.

National security constitutes an internationally recognized exception to the policy objective of an unrestricted flow of foreign investment. Exon-Florio represents a vehicle to assist the President in carrying out his responsibilities to protect the national security. This is the spirit in which we are implementing the provision in a manner consistent with our open investment policy and in full accord with the spirit and intent of the legislation.

It is in this spirit that the Department of Commerce plays its important role in the Exon-Florio process. Its responsibilities include controlling the export of products and technologies to destinations that could threaten the national security, assuring an adequate industrial base in case of a national emergency, and insuring U.S. access to goods and services vital to the national security.

At the Department of Commerce, Secretary Mosbacher made the final decision on the Department's position in the Semi-Gas case. From the beginning, Commerce employees at all levels have been involved in implementing Exon-Florio, ranging from industry analysts and export control specialists to all

levels of policy officials, including Secretary Mosbacher and Deputy Secretary Murrin.

Soon after the Exon-Florio provision became law in August 1988, Commerce set up an internal Exon-Florio working group designed to insure that all relevant units in the Department would contribute to the Exon-Florio process. The working group is coordinated by the Trade Development Unit in the International Trade Administration and includes representatives from the Bureau of Export Administration, the Technology Administration, the Economics and Statistics Administration, the Office of the General Counsel, and ITA's International Economic Policy Unit.

In addition, when special product or process expertise is warranted, industry and technical specialists are included. In the Semi-Gas case, this involved personnel from the Office of Science and Electronics and the National Institute of Standards and Technology.

All members of this working group are encouraged to evaluate the national security implications of each transaction from their own particular perspective. Consultations are made both with our government officials and with members of the private sector as long as inquiries can be made in a generic manner and would not divulge the names of the companies involved in a case or lead to their disclosure.

Through this formal working group and these additional participants, Commerce did consult with Federal technology officials during the Semi-Gas case. Commerce does not have a checklist of routine questions to be asked in each case or particular persons to be consulted. Each of the investigations thus far has proved to be unique, and, therefore, each has demanded flexibility with individual, nonroutine handling.

In the hearing invitation the Chairman asked how we define the terms "impair the national security" and the capability and capacity of domestic industries to meet national defense requirements.

The term "national security" was deliberately left undefined by the Congress in the statute in order not to restrict the President's discretion in these cases. CFIUS as a body and we at Commerce have followed this lead. Likewise, proposing an overall set of criteria to judge the effect of transactions on domestic industries would not be sufficient.

There is a wide divergence in the types of industries involved in Exon-Florio cases as well as in the types of deals involved and in the foreign entities making the purchase. Flexibility is absolutely necessary to evaluate properly all the nuances that can be involved in such cases. The guidelines developed by the Department of the Treasury for the conduct of the review and investigation of proposed transactions are procedural in nature to expedite the administration in the process. They do not attempt to impose definitions on the member agencies.

The Chairman also asked about the point at which the erosion of domestic base of a given industry is in itself a threat to national security. This is difficult to answer because I do not think anyone can define the imaginary threshold at which this would occur. There are too many variables to consider for such precision to be possible when considering cumulative effects.

We at Commerce do consider cumulative changes in domestic industries and cumulative foreign purchases along with all other aspects of the proposed transactions during the investigation of Exon-Florio cases. Cumulative effects are certainly important criteria but not the only ones to consider, nor are they the deciding factor.

In the Semi-Gas case, CFIUS did consider at great lengths the effect of the Semi-Gas sale on SEMATECH as we would with any government-assisted

research project. The Department of Commerce looks primarily for past export violations by the foreign company involved and at the technology or technological level of the U.S. firm being purchased.

The information gathered in those areas is then related to the transaction as a whole and used to evaluate the potential effect of the transaction on the national security, always taking into consideration the specific requirements of the Exon-Florio provisions.

In the Semi-Gas case we gathered technical information from government and private sources on all aspects of the technology involved in the gas distribution and purification process. This included meeting with technical experts from Semi-Gas to obtain firsthand information on the technology involved. Great effort was made to determine how critical Semi-Gas is in the operation of SEMATECH and how national security might be impaired if credible evidence could be found that Nippon Sanso might be likely to take action detrimental to the relationship between Semi-Gas and SEMATECH.

Regarding the Chairman's questions on whether formal technical reviews were conducted, detailed assessments were made by experts in various technical fields at the Department of Commerce. Site visits, on the other hand, were not conducted in this case. After lengthy discussion, CFIUS decided that such visits were not necessary, as they would be unlikely to disclose any information not already in the possession of the committee.

No one disputes the value of SEMATECH to the semiconductor industry. Among the specific questions considered were how critical the Semi-Gas technology was to SEMATECH's mission; how the transaction would affect SEMATECH's operation; how might SEMATECH's concerns be addressed by structural arrangements that would isolate Semi-Gas's management team from Nippon Sanso management; and which type of gas purification approach was more advanced, and whether either approach would achieve greater market acceptance in the future.

There was unanimity, however, both within the Department and among the CFIUS agencies that the evidence presented did not meet the narrowly-defined requirement of credible evidence that the acquiring foreign company will take an action to jeopardize our national security.

At the end of the investigation period, a formal report from the committee to the President was prepared as required. This report included the committee's findings and unanimous recommendation that the evidence developed during the review and investigation period did not constitute the necessary credible evidence that is required to block a transaction.

It is the letter of the law that we must use as our guide in these investigations. The Department of Commerce will continue to abide by the statute and will continue to do our utmost to evaluate each and every transaction notification as thoroughly and as fairly as we are able.

I would be happy to answer questions at the appropriate time, Mr. Chairman.

Senator GORE. We will withhold questions until the panel is concluded. Dr. Herzfeld, please proceed.

**STATEMENT OF DR. CHARLES M. HERZFELD, DIRECTOR,
DEFENSE RESEARCH AND ENGINEERING, DEPARTMENT OF
DEFENSE; ACCOMPANIED BY WILLIAM N. RUDMAN, DEPUTY
UNDER SECRETARY (TRADE, SECURITY, AND POLICY), OFFICE
OF POLICY**

Dr. HERZFELD. Mr. Chairman, I am pleased to have this opportunity to appear before the committee to discuss the matters that we have been discussing. If you

agree, I would like to introduce my testimony for the record and just make some brief comments and be available for questions.

Senator GORE. Without objection.

Dr. HERZFELD. I would like to begin by introducing Mr. Rudman, Deputy Under Secretary of Defense for Trade Security Policy, who is our action person in the Department of Defense for these matters. I am on the other side of the house, as you know, on the technical and acquisition side, and I am here to speak to some of the broader issues that I know you are interested in, and so with your permission, I would like to hand the floor to Mr. Rudman.

Senator GORE. Mr. Rudman, please proceed.

Mr. RUDMAN. Thank you, Mr. Chairman. I will limit my remarks at this time to that part of my statement that relates to the DOD process, with your permission.

Within CFIUS, Defense contributes much of the expertise that is needed to evaluate potential national security concerns associated with proposed acquisitions. We initiate many of the follow-up questions posed to industry which we feel are necessary to complete our assessment. Within DOD, the focal point for CFIUS operations is the Defense Technology Security Administration, of which I am director.

When we receive notification of a proposed transaction from Treasury, which chairs CFIUS and administers its activities, as you know, we immediately refer the case to the appropriate military services and defense agencies for comment in order to formulate a Defense Department position on what impact the transaction may have on national security.

Careful consideration is given to, among other things, the possible impact on the defense industrial base and relevant defense programs, the potential transfer of militarily critical technologies, and the potential impact on defense contracts, particularly those that are classified.

The committee has asked how national security is defined in relation to CFIUS investigations. Relevant factors that are considered by DOD include whether the U.S. Government could lose access to the technology or product as a result of the transaction, whether the Government of the foreign acquirer, or the foreign acquirer itself, is of a reliable character, whether the United States Government will have physical access to the technology or product in times of crisis or conflict, and the sensitivity of the technology with regard to U.S. national security.

In the course of the CFIUS review, all concerned DOD components were consulted and after bringing extensive resources to bear it was the DOD position to interpose no objection to this transaction based on national security as defined in Exon-Florio. This was the consensus of the other CFIUS members as well, as you know.

Thank you, Mr. Chairman.

[The statement follows:]

STATEMENT OF WILLIAM N. RUDMAN, DEPUTY UNDER SECRETARY, TRADE
SECURITY POLICY, DOD

I want to thank the Committee for the opportunity to discuss the Department of Defense's role in the Committee on Foreign Investment in the United States (CFIUS).

As you know, the Exon-Florio amendment to the Omnibus Trade Act of 1987 authorized the President, or his designee, to investigate proposed foreign acquisitions in order to evaluate their potential effects on national security. Where there is credible evidence to believe that the acquisition might threaten national security, he is authorized to prohibit or suspend the acquisition. In order to do so, however, he must, under Exon-Florio, have credible evidence that: (1) the foreign investor might take action that threatens to impair national security and (2) existing laws, other than the International Emergency Economic Powers Act (IEEPA) and the Exon-Florio provision, do not provide adequate and appropriate authority to protect national security.

By Executive Order, the President designated the Committee on Foreign Investment in the United States (CFIUS) to receive notices and other information, to determine whether investigations should be undertaken, and once an investigation has been completed to prepare a report and a recommendation to the President.

The Department of Defense, with its national security mandate, has a vital interest in fulfilling the letter and the spirit of Exon-Florio. We have participated and will continue to participate fully in its implementation.

I would like to outline DOD's role within the CFIUS process and address the Committee's inquiry into the factors we consider when reviewing a CFIUS case. I will then address an issue of particular concern to the Committee—CFIUS's recent review of the proposed acquisition of Semi-Gas Systems Inc., by Matheson Gas Products, Inc., a wholly-owned subsidiary of the Japanese corporation Nippon Sanso K.K.

The subcommittee asked who is involved in the CFIUS decision making process and whether or not non-government officials are members of CFIUS. CFIUS is a U.S. Government committee whose membership is confined to United States Government officials. Its members are the Secretaries of the Treasury—who chairs the Committee—Defense, Justice, and Commerce, plus the Director of the Office of Management and Budget, the U.S. Trade Representative, and the Chairman of the Council of Economic Advisers. There is no private sector membership in the Committee, but industry representatives of companies involved in CFIUS inquiries are asked to provide detailed information and may be asked to personally address the Committee.

Within CFIUS, Defense contributes much of the expertise that is needed to evaluate potential national security concerns associated with proposed acquisitions. We initiate many of the follow-up questions posed to industry which we feel are necessary to complete our assessment.

The focal point in the Department of Defense for CFIUS operations is the Defense Technology Security Administration of which I am the Director. When we receive notification of a proposed transaction from Treasury which chairs CFIUS (and administers its activities), we immediately refer the case to appropriate military services and Defense agencies for comment in order to formulate a Defense Department position on what impact the transaction may have on national security. Careful consideration is given to, among other things, the possible impact on the defense industrial base and relevant defense programs, the potential transfer of militarily critical technologies, and the potential impact on defense contracts, particularly those that are classified.

The Committee has asked how national security is defined in relation to CFIUS investigations. Relevant factors considered by DoD include: whether the United States Government could lose access to the technology or product as a result of the transaction, whether the government of the foreign acquirer or the foreign acquirer itself is of reliable character, whether the United States Government will have physical access to the technology or product in times of crisis or conflict, and the sensitivity of the technology with regard to U.S. national security.

The Exon-Florio statute under which CFIUS operates requires that determinations be made on a case-by-case basis. It does not provide a legal basis for the protection of an entire industrial sector or technological base from foreign acquisition.

It is within this general framework that all CFIUS investigations operate, including the recently completed investigation of the proposed acquisition of Semi-Gas Systems Inc. by Nippon Sanso K.K. The President decided not to oppose the sale based on the findings of a CFIUS investigation.

In accordance with statutory requirements, the investigation focused on whether there was credible evidence that Nippon Sanso might take any action that threatens to endanger national security and whether other laws were adequate and appropriate to deal with the threat.

CFIUS collected information from the parties to the transaction in several rounds of oral and written questions, which included a demonstration of Semi-Gas technology.

The information was subject to scrutiny by government technical and industry experts.

During its investigation CFIUS also consulted SEMATECH, the USG-supported consortium of U.S. semiconductor manufacturers. SEMATECH opposed the sale. SEMATECH was not a party to the transaction but uses Semi-Gas equipment and has Semi-Gas service personnel on its premises. SEMATECH's concerns included protection of proprietary information and possible delays in its research program if Semi-Gas personnel had to be replaced as a result of the sale.

CFIUS examined elements of a confidentiality agreement proposed by Nippon Sanso, designed to protect SEMATECH's proprietary information. These elements were similar to those which the Defense Department requires to protect classified information and CFIUS found that they would be sufficient to protect proprietary information.

With regard to the question of possible withholding of supplies from the market because of the market share of the combined companies, CFIUS concluded that any market restraints could be dealt with by antitrust legislation. Moreover, there is no record that Nippon Sanso has withheld supplies from the market in the past.

In the course of the CFIUS Review, all concerned DoD components were consulted and after bringing extensive resources to bear it was the DoD position to interpose no objection to this transaction based on national security. This was the consensus of all other CFIUS members. In addition, no CFIUS agency held the view that other laws were inadequate to protect the national security.

Mr. Chairman, this concludes my formal testimony. I will be happy to answer any questions that the Committee may have.

Senator GORE. Well, thank you very much.

Dr. HERZFELD. If I may make my concluding remarks.

Senator GORE. I am sorry. That is fine. Go ahead, please.

Dr. HERZFELD. You have heard how the process is structured within the Department of Defense, in the specific matter at hand, the sale of Semi-Gas to Nippon Sanso. In June, DARPA, the Defense Advanced Research Projects Agency which reports to me, forwarded a response to Mr. Rudman's organization that essentially said that DARPA was concerned about the broad problem that this generated. Obviously, we are very interested in the health and welfare of SEMATECH, since we are funding half of it out of our budget, and we take this quite seriously, and also the effort that is represented there, and we were clearly concerned that this would make some difficulties.

The issue was how much of a difficulty, and secondly, was there under the Exon-Florio act, a clear justification for considering this case threatening to national security? There were quite extensive discussions within OSD on this matter, I may add, and in the end the conclusion was that there was no statutory basis for declaring this a problem of national security as we interpret the language of the act and the legislative history.

We still believe that there is a problem. I personally share with you the concern about the impact of long-run trends of this sort, but I do not believe that these problems are easily solved by a different approach to the direct investment by foreign funding.

I think the real problems of the U.S. semiconductor industry are much deeper. They are structural problems that have to do with why, or why not, people invest in our semiconductor companies, and why the semiconductor companies themselves do not invest more in their future.

The specific item, Semi-Gas, as I understand it, was considered as an acquisition by U.S. companies but they did not meet the price, and this is a matter in which this administration, and I am a member of it, thanks to the advice and consent of this body, that I believe we should not interfere directly.

So I would like to close on this note and open our side for questions.

Senator GORE. All right. Thank you very much. Before going to questions for the panel, I would like to enter some documents in the record by reference—documents which show the concerns that Federal officials and others have raised about the many foreign takeovers in the electronics area. The first is a listing of semiconductor industry acquisitions within the so-called electronic food chain. First of all, these are acquisitions reviewed under CFIUS, and with regard to chips, there was the Advanced Micro Devices purchase, then with regard to silicon wafers there was the Monsanto purchase. With regards to materials and equipment, there was the Materials Research Corporation case. Where maskings are concerned, there was the Texas Instrument case. With capacitors, the AVX Corporation case. With high and ultra-purity poly silicon, the Union Carbide case. With semiconductor gas processing and purification, the Semi-Gas Systems case which we are expanding upon in this hearing, and there have been 30-plus notifications for acquisitions involving semiconductor-related companies under CFIUS.

Without objection, this will go in the record.

[The information referred to follows:]

FOREIGN ACQUISITIONS OF THE U.S. SEMICONDUCTOR-RELATED COMPANIES

The administration's Committee on Foreign Investment in the CFIUS has reviewed over 30 proposed foreign acquisitions of U.S. semiconductor-related companies. CFIUS has not recommended blocking any of these purchases.

The purchases fall into key parts of the "electronics food chain"—the "chain" that consists first of the equipment and materials technologies necessary to make chips and then the chip manufacturers themselves. The acquisitions include: Semi-Gas Systems (semiconductor gas processing and purification equipment); Union Carbide (high and ultra pure polysilicon materials); AVX corporation (capacitors); Texas Instruments (semiconductor maskings); Materials Research Corp. (materials and related equipment); Monsanto (silicon wafers); Advanced Micro Devices (semiconductor chips)

Senator GORE. Would you be willing to characterize the quality of the firms I have read on this list as high quality, Dr. Herzfeld?

Dr. HERZFELD. Yes, I think so. I would like to add, if I may, that some of the companies that sold these pieces were quite capable of keeping them, but made an investment decision on their own that it was not in their interest to continue that.

Senator GORE. Now, I would like to put into the record a letter from the Acting Assistant Secretary of Defense for International Security Policy, James Binns, directed to the Hon. David Mulford, who, I guess, was your predecessor, Mr. Niehuss, is that right, at Treasury?

Mr. NIEHUSS. No, he was senior to me always.

Senator GORE. All right, he was, excuse me, he was Under Secretary for International Affairs at the Department of Treasury. The letter SAYS, "Dear Dr. Mulford, the Department of Defense formally requests an investigation of the proposed acquisition of Monsanto Electronic Materials by Huels AG, accordance with the provisions of section 721 of the Defense Production Act, as amended.

"DOD requests this investigation because we believe the U.S. government must engage in a thorough and thoughtful assessment of the potential impact of this sale on the national security of the United States."

And it goes on to talk about how SEMATECH had plans to rely upon Monsanto's 8-inch wafers, and this was a formal request for investigation. This purchase was approved by the administration, correct?

Mr. CANNER. It was approved by the President, yes, sir.

Senator GORE. All right, without objection, we will insert that.

[The information referred to follows:]

OFFICE OF THE UNDER SECRETARY OF DEFENSE,
WASHINGTON, DC, 6 DEC 1988.

The Honorable David Mulford Assistant Secretary for International Affairs Department of the Treasury Washington, D.C.

Dear Dr. Mulford: The Department of Defense formally requests an investigation of the proposed acquisition of Monsanto Electronic Materials by Huels, AG in accordance with the provisions of Section 721 of the Defense Production Act as amended.

DoD requests this investigation because we believe the U.S. Government must engage in a thorough and thoughtful assessment of the potential impact of this sale on the national security of the United States. In particular, the U.S. Government must determine whether the acquisition in itself threatens the national security by potentially undermining the intent of projects such as Sematech. Sematech was established in order to return the United States to the forefront of semiconductor technology. The purpose is to ensure continued research, development, and production of semiconductors in the United States. Sematech therefore relies upon U.S. located and U.S. owned capacity.

Sematech plans to rely upon Monsanto's eight inch wafers. Monsanto was chosen because it was the only U.S. owned company with this capability. The interagency group needs to determine what effect foreign ownership of Monsanto will have on the Sematech effort and whether this ownership necessitates restructuring of the Sematech program in order to ensure an adequate defense industrial base. In addition, they need to assess the impact of the transfer of R&D decision making to this foreign company which may have different interests and business plans than the interests of U.S. companies and the United States. These are national security and national policy questions which can only be assessed through interagency review and discussion.

In addition to resolving questions concerning ongoing efforts to ensure domestic production, an investigation is necessary in order to elicit information regarding the acquiring entity. Monsanto has

cooperated in responding to questions regarding the sale, but they were unable to answer questions about Huels with certainty. We still know relatively little about the acquiring firm. We need to determine the likelihood that the acquirers could take action which would impair the national security, such as closing down U.S. based production or R&D. We must also determine whether there are any technology security risks associated with this acquisition. Finally, the CFTUS should inform itself of Monsanto's options should the CFTUS recommend halting the acquisition. A formal review will allow the Government additional time to obtain this information.

The U.S. Government is still working out the procedures to follow in these responding to Section 721 notifications. As a consequence, this case was distributed to the various Departments after some delay. Before putting the Federal Government on record on this case, we need to more thoroughly review this acquisition. For the reasons outlined above, the Department of Defense therefore recommends an investigation of this acquisition under Section 721 of the Defense Production Act.

Sincerely,

JAMES H. BINNS, *Acting Assistant Secretary.*

Senator GORE. Next, I would like to put in the record a letter dated 28 March 1990 from the Assistant Secretary of the Air Force—excuse me, this is a memorandum on the subject of Komatsu's pending purchase of Union Carbide Chemicals and Plastics Company. And I quote: "The Air Force review of the subject takeover of Union Carbide Chemicals and Plastics, Inc., has raised great concerns which we believe justifies our request that the CFTUS conduct a 45-day investigative period in order to resolve those outstanding issues."

Again, this was another case which I referred to involving the food chain here. The letter continues: "The Defense Priority and Allocation System which assures that the military can get a company's product when it deems necessary does not assure in any way that commercial U.S. manufacturers will receive any priority treatment over foreign manufacturers. Our major concern is that UCC&P, the company involved in this case, had advanced the manufacturing technology to be able to produce the purest polycrystal silicon rod in the world, and the patents which describe this process will be transferred to Komatsu, who may do with them as they see fit."

[The material referred to follows:]



DEPARTMENT OF THE AIR FORCE
WASHINGTON DC 20330-1000

28 March 1990

OFFICE OF THE ASSISTANT SECRETARY

MEMORANDUM FOR DUSD(TSP)

SUBJECT: Komatsu's Pending Purchase of Union Carbide Chemicals and Plastics Company Inc. - CFIUS. Case No. 90-61

The Air Force review of the subject takeover of Union Carbide Chemicals and Plastics Co. Inc (UCC&P) has raised great concerns which we believe justifies our request that the CFIUS conduct a forty-five (45) day investigative period in order to resolve those outstanding issues.

UCC&P has produced the most pure polycrystal silicon material in the world, for use as an Infra Red (IR) detector under an SDI sponsored contract with Hughes entitled "The Boron Free Program." Their normal quality polycrystal silicon, while of lesser purity than that mentioned above, is still better than the rest of the world's suppliers.

The process of manufacturing polycrystal silicon rods from silane gas (SiH_4) was obtained from Komatsu by UCC&P nearly ten (10) years ago. Over the years UCC&P has refined the original process and has patents pending on the improved process. UCC&P has the capacity today to produce 2000 metric tons per year of the "normal quality" material and by modifying their reactors could produce the "Boron Free" material just as easily.

Hemlock Semi-Conductor is another U.S. manufacturer of polycrystal silicon rod. It is currently a joint venture between the U.S. company Dow Corning (65% ownership) and two Japanese companies, Shin-Etsu Handotai (SEH) and Mitsubishi. Hemlock has been underwritten by the U.S. Government in our Title III Mobilization Base Program for the production of high grade polycrystal silicon rod. It has failed to meet the phosphorous impurity specification to date. UCC&P approached the Title III personnel prior to the award offering the government its polycrystal silicon rod that already met the government's specification. The government's response was that they would award a contract based on receipt of proposals. Hemlock was the only bidder. (This was the first program award under the Title III program).

The president of Hemlock has recently told our Title III Program Office personnel that they intend to shut down this high

purity polycrystal silicon reaction when the Title III contract is over because it constitutes too small a fraction of their business, and they intend to concentrate on silicon for the integrated circuit market.

The table below should clarify the differences between the polycrystal silicon rods that have been alluded to.

Polycrystal Silicon Rod Manufacturers (and Gov't Specs)	Impurities	
	Boron (PPB)*	Phosphorous (PPB)*
Title III Gov't Spec.	0.010	0.020
Hemlock (Title III)	0.003	0.030 ⁺
Hemlock (Normal)	0.100	0.200
UCC&P (Normal)	0.003	0.003
UCC&P (Boron Free)	<0.001	0.003

*PPB=Parts Per Billion

+Comment: The phosphorous impurities are removed in going from polycrystal silicon to the more usable single crystal silicon to a large degree, but the more phosphorous that must be removed, the more expensive the processing.

The other very important application of high purity, highly uniform, doped silicon devices is for switching devices used in the control of high voltage and high current. Thyristors (high power switching devices) which are used in commercial power distribution networks today are available in Japan and Germany. While there are U.S. manufacturers of low power thyristors, there are currently no U.S. manufacturers of high power (3000-5000 volts) thyristors. Recently, Westinghouse tried to buy four (4) inch diameter float zone single crystal silicon wafers from Japan to manufacture high power thyristors.¹ They were told that there was an 18-24 month waiting period. The Japanese were supplying their industry first.

The potential military application of the high power switching device is awesome if one considers that it is a key element for the success of controlling the electric power for electric rail guns, high powered microwaves, and electrically powered drives for submarines. A recent presentation by the Commerce Department on a concept for an all electric train alluded to the fact that the key components, to include the switching devices, would come from Siemens in Germany.

¹Westinghouse manufactures the largest diameter float zone single crystal silicon in the U.S. which is three (3) inches.

When high power switching devices find wide spread use, the production volumes for polycrystal silicon will reach into the thousands of metric tons per year vice the hundreds of kilograms used for detectors today.

What is patently obvious is that Komatsu sees a long term, worldwide need for polycrystal silicon whereas the near term profit motive appears to be driving Hemlock. Assurity of supply for U.S. users can be obtained by agreement with Komatsu, but that can surely be circumvented if a large foreign (say Japanese) order is received, since business is business. The Defense Priority and Allocation System which assures that the military can get a company's product when it deems necessary does not assure in any way that commercial U.S. manufacturers will receive any priority treatment over foreign manufacturers. Our major concern is that UCC&P has advanced the manufacturing technology to be able to produce the purest polycrystal silicon rod in the world, and the patents which describe this process will be transferred to Komatsu who may do with them as they see fit.

We need the 45 day investigative period to thrash out the national policy in this matter. At this time, we believe that there is a definite national security impact if this sale is allowed to proceed.

James B. Rake

Senator GORE. Now, this purchase was also approved under CFIUS, correct? Is that correct, Mr. Canner?

Mr. CANNER. Correct, sir.

Senator GORE. You were involved with a process during this period, also?

Mr. CANNER. Yes, I was.

Senator GORE. Okay. Next, I would like to put into the record a memorandum from the Office of Assistant Secretary of Defense for Production and Logistics to the director of the Defense Technology Security Administration, concerning the acquisition of Union Carbide Chemicals and Plastics Co. by Komatsu Electronic Metals, Inc., and I quote: "KEM ownership of the UCC&P technology for manufacturing high-purity polysilicon may significantly affect defense programs needed for the national security." It goes on to list some conditions.

Senator GORE. This purchase by Komatsu was also approved, correct, Mr. Canner?

Mr. CANNER. If it is the same one, Union Carbide, yes, sir.

Senator GORE. Excuse me?

Mr. CANNER. If it is Union Carbide-Komatsu, yes.

On that transaction, sir, if I may note for the record, that the Assistant Secretary, the Defense Department representative at that time when we met, as well as other CFIUS agencies, felt that in the case of Carbide, as in the case of Huels, we were in a situation where these two firms were trying to sell the companies for a considerable period of time, had not invested sufficient capital to keep these firms viable, and were losing money.

And the question that you had to deal with was were you better off with a foreign entity, putting additional capital into these firms who were failing, or blocking the deal. That was the nub of the issues on those two transactions that you referred to, sir, the Huels transaction and the Union Carbide.

[The material referred to follows:]



THE OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301-6000

PRODUCTION AND
LOGISTICS

MEMORANDUM FOR DIRECTOR, DEFENSE TECHNOLOGY SECURITY
ADMINISTRATION

SUBJECT: Acquisition of Union Carbide Chemical and Plastics
Company by Komatsu Electronic Metals Co. Ltd.

Pursuant to Section 721 of the Defense Production Act the Department of the Treasury was notified on March 5, 1990, of the contemplated purchase of Union Carbide Chemical and Plastics Company's (UCC&P) high purity polysilicon business by Komatsu Electronic Metals Company (KEM), a Japanese corporation.

High purity polysilicon is an essential material for infrared sensors used in the Strategic Defense Initiative (SDI). This material also has potential for use in high power switching devices being considered for future weapon systems, like the electric drive submarine and rail gun. High purity polysilicon is so important to Department of Defense (DoD) programs that Title III of the Defense Production Act was used in an attempt to establish a domestic manufacturing capability for this material. In addition, the DoD issued, and has in effect, a procurement regulation restricting purchases of high purity polysilicon to domestic manufacturers only.

UCC&P is believed to produce the purest polysilicon in the world and is the only source of high purity polysilicon meeting DoD requirements. The other producer of high purity polysilicon, Hemlock Corp., which is 35 percent owned by Japanese companies, is unable to produce polysilicon meeting DoD purity requirements.

KEM ownership of the UCC&P technology for manufacturing high purity polysilicon may significantly affect defense programs needed for the national security should KEM decide to: 1) retain the highest quality material for its own use or provide it to other Japanese companies thereby denying the highest grade material to DoD contractors or, 2) move high purity polysilicon operations to Japan which will eliminate the only domestic production source capable of meeting DoD purity requirements.

For these reasons, a further investigation of this transaction by the Committee on Foreign Investment in the U.S. seems prudent and is, therefore, recommended.

RICHARD E. DONNELLY
Assistant Deputy Under Secretary
(Manufacturing and Industrial
Programs)

Senator GORE. Yeah, now, Mr. Canner, could you move the microphone a little bit closer?

Mr. CANNER. Sorry, sir. Certainly.

Senator GORE. Now, under this process, there have been how many proposed purchases reviewed?

Mr. CANNER. Approximately—we received approximately 460 notifications since the time of the implementation of Exon-Florio.

Senator GORE. And how many proposed sales have been blocked?

Mr. CANNER. The President chose to take action on one of those transactions, sir.

Senator GORE. One out of 460—460?

Mr. CANNER. That is correct, sir, yes.

Senator GORE. 460 exactly, or 460-some odd?

Mr. CANNER. Well, we receive notifications two or three times a week, sometimes five or six times a week.

Senator GORE. So you are not sure of the exact number.

Mr. CANNER. At last count at the end of last week, I believe it was 460. I think we got two or three in this week.

Senator GORE. Okay, 460, and of those, 1 has been blocked.

Mr. Rudman, have there been other demurs of the type I read from the services concerning proposed purchases of companies of this sort?

Mr. RUDMAN. We have had a couple of others, sir, yes.

Senator GORE. You have? Could you provide those to the subcommittee, please, for the record?

Mr. RUDMAN. We will get it for the record.

[The information referred to follows:]

It is not clear what you mean by "demurs of the type I mentioned." If you would clarify your question we would be pleased to respond. In this connection, it may be helpful to explain the process by which the Department of Defense formulates its position on whether CFIUS cases require an investigation. When DTSA receives notification of a proposed transaction from Treasury, which chairs CFIUS and administers its activities, we immediately refer the case to the appropriate military services and defense agencies for comment. DoD's position on a CFIUS case, however, is formulated within the Office of the Secretary of Defense after consideration of all the comments received from within DoD, as well as from other CFIUS members.

Senator GORE. I would like to get those as soon as possible. We plan to continue our investigation of this matter.

Also for the record, I would like to, without objection, put in a list of acquisitions in the electronic sector by foreign companies, and I will not elaborate on that at this point. But it is a very lengthy list.

[The information referred to follows:]

Japanese Electronics Acquisitions Since 1986

Acquiring Company	Acquired Company	Equity
Advantest	Integrated Circuit Testing	38%
Advantest	Sym-Tek Systems	10%
Alps Electric Co.	Cypher Data Products	\$10 million
Asahi Corp.	PhoneMate, Inc. (telecommunications)	100%
Canon	Energy Conversion Devices (materials)	7-10%
Canon	Next, Inc. (Jobs' personal computers)	\$100 million
Chikyu Kagaku Sogo Kenkyujo	Telemar Resources (image proc. software)	?
Chugal Boeki	Vicon Industries (closed circuit TV)	\$3 million
Fuji Electric	Burroughs imaging division	\$20 million
Fuji Electric	PPC Industries (e-beam)	34%
Fujikura Ltd.	Amphenol Corp.	?
Fujitsu	Burroughs fax division	100%
Fujitsu America	Intelligent Storage	100%
Fujitsu Microelectronics	Via Technologies (VLSI)	?
Furukawa Electric	Bell Ind. Comp. Mem. Division	\$15 million
Graphtec Corp.	Precision Image (plotters)	\$7 million
Hitachi	National Advanced Sys. (computers)	100%
Hoya	Ampex disk factory	100%
Kanematsu-Gosho	Telenetics, Inc.	?
Kawai Musical Insts.	Lowrey Indust. (keyboards)	100%
Kolto Mfg. Co.	North American Lightning	\$16.5
Kobe Steel	GCA laser inspection equipment division	100%
Kubota Steel (11-87)	Akashic Memories (thin film)	100%
Kubota Steel (10-86)	Ardent Computer (supercomputers)	44%
Kubota Steel (7-87)	Exabyte (tape memory)	\$7.5 million
Kubota Steel	Maxtor (disk drives)	\$17 million
Kubota Steel (3-89)	Maxoptics (erasable optical disks)	25%
Kubota Steel (10-87)	MIPS (RISC chips)	20%
Kubota Steel (6-89)	Razna Corp (CAD software)	15%
Kubota Steel	Synthesis Software	<\$ 1 million
Kyocera	Counterpoint Computers	?
Kyocera	Elco Corp. (connectors)	\$250 million
Kyocera	AVX (components)	100%
Kyocera	Pictel Corp.	?
Kyoto Electronics Mfg.	Scientific Eq. App. Marketing Corp.	100%
Leonix Corp.	Cooper LaserSonics	\$4 million
Marubeni	Robotron	\$4 million
Marubeni	RPC Industries, Inc.	\$5 million
Matsushita	JVC Magnetic Products	\$23.1 million
Mitsubishi Corp.	Amtech (recognition systems)	15.5%
Mitsubishi Corp.	Electrosound Group (CDs)	\$6 million
Mitsubishi Corp.	Memory Tech, Inc.	\$5 million
Mitsubishi Electric	Powerex (discrete semiconductors)	33%
Mitsubishi Electric	WM Power Prods. (circuit breakers)	100%
Mitsubishi Metals	Siltec (silicon wafers)	100%
Mitsubishi Petrochemical	Digene Diagnostics (testing devices)	?
Mitsubishi Rayon	Poly-Optical Products (fiber-optics)	10%
Mitsui & Co.	Gain Electronics	\$6 million
Mitsui & Co.	Stellar Computer (supercomputers)	\$1 million
Mitsui & Co.	Imatron, Inc.	\$2 million
Nakamichi	Mountain Computer (tape drives)	100%
NEC	AIM Telephones	10%
NEC	API Telephone Systems	?
Nippon Gaishi	Cabot Beryllium division (semiconductor mats)	100%
Nippon Kokan	GE silicon factory	100%
Nippon Mining	Gould	100%
Nippon Seiko	Motornetic Corp.	\$3 million
Nippon Steel	GTX (computer equipment)	25%
Nippon Steel	Simtek Inc.	\$2 million

Nitto Electric	Permacel, Inc. (SMT tapes)	100%
Pioneer Electronic Corp.	Discovision (laser disks)	\$200 million
Olin Asahi	Aegis, Inc. (IC packages)	100%
Osaka Titanium Co.	U.S. Semiconductor (wafers)	100%
Osaka Titanium Co.	Cincinnati Milacron Semi. Materials	100%
Ricoh	Panatech Research (semiconductor division)	100%
Rohm Co.	Xetel Corp.	\$3.2 million
Rohm Co.	Telmos	\$1.5 million
Rohm/Exar Co.	Excel Microelectronics	\$5.7 million
Sanyo	Icon Systems and Software, Inc.	60%
Hattori Seiko Co.	AT&E Corp.	\$19 million
Seki & Co.	Novellus Sys. (CVD)	\$1.9 million
Settsu Paperboard Mfg.	Medasonics	\$15 million
Sharp Microelects Technologies	Hycom (modems)	92%
Shin-Etsu Chemical	Brooktree Corp. (graphics chips)	\$2 million
Shizuki Electric	TRW capacitor division	100%
Sony	CXC Corp.	?
Sony Magnescale	National Machine Systems	\$4 million
Sony MRC Acquisition Corp.	Materials Research (wafer processing)	100%
Sumitomo Bakelite	Sheldahl Inc. (PCBs)	\$4.9 million
Sumitomo Electric	High Voltage Engineering	100%
Sumitomo Heavy Ind.	Radiation Dynamics (e-beam)	?
Taiyo Yuden	Xentek (power supplies)	80%
TDK	Display Components	\$5 million
TDK	Silicon Systems (semiconductors)	\$200 million
Tokin	Mini Magnetics (magnetic materials)	\$23 million
Toppan Printing	Industrial Circuits, Inc.	100%
Toshiba	Toshiba-Westinghouse	100%
Toshiba	Diasonics (MRI Division)	100%
Toshiba Ceramic	Quartz Industrial (semiconductor materials)	80%
Tosoh Corp.	Varian Spec. Metal Division	100%
Uniden	Regency Elec. (radio)	\$12 million
Uniden	Magellan System Co. (satellites)	25%
Yazaki Corp.	Circuit Controller Corp. (harnesses)	\$3.8 million
Yokogawa Electric	Supertec Computers (mini supercomputers)	\$13.5 million

AEA Japan Office (1/4/90)

Senator GORE. Now, what definition of national security, Mr. McBride, does Commerce use in addressing Exon-Florio cases?

Mr. MCBRIDE. We use the definition of intent to impair national security when looking at national security as an issue.

Senator GORE. Where does that definition come from?

Mr. MCBRIDE. I do not know, sir.

Senator GORE. Okay.

Mr. MCBRIDE. I will be happy to supply the committee with that information.

Senator GORE. Okay. Dr. Herzfeld, what definition of national security does the Department of Defense use in these matters?

Dr. HERZFELD. As Mr. Rudman explained, I think, quite fully, basically the elements are questions of access to the technology, questions of its availability in a crisis, the reliability of the supplier, the sensitivity of the technology, and the criticality to the particular defense applications.

Senator GORE. I would like to put into the record by reference, portions of a document entitled Keeping Access to the Leading Edge, a Consolidated Executive Summary, by the Industrial Base Committee to the Defense Science Board, dated June 6, 1990, with a quote from Secretary Cheney on the front page.

[The material referred to follows:]

KEEPING ACCESS TO THE LEADING EDGE A CONSOLIDATED EXECUTIVE SUMMARY BY THE INDUSTRIAL BASE COMMITTEE TO THE DEFENSE SCIENCE BOARD

"In the years ahead, the United States will confront new challenges, perhaps from a revitalized and restructured Soviet economy, but almost certainly from a unified and competitive Europe, a dynamic Japanese economy, rapidly developing countries like South Korea and Singapore ... (all with) implication for the U.S. techno-industrial base and, by extension, the military balance. ... The United States cannot persist in its current laissez-faire approach to the competition in advanced

technologies without incurring major economic and security problems of its own in the future. ... If the United States proves unable to compete effectively in areas of advanced technologies, it would incur the most severe economic and security consequences: markets would be lost, the U.S. industrial base would erode, and the United States would become increasingly dependent upon offshore technologies for its defense at the same time as its economic health weakens. It is somewhat ironic that, although the Soviet Union constitutes the greatest threat to U.S. security, the greatest challenge to the U.S. technology and industrial base will almost certainly come from the United States' own allies. Thus the United States must succeed in this 'friendly competition' with advanced Western industrial states if its economic power, and the West's system of collective security, is to endure."

Secretary Richard Cheney, pp. 133 and 139
Soviet Military Power
U.S. Department of Defense, 1989

INTRODUCTION

The national security strategy of the United States is fed by the nation's strengths in technology. To support that strategy, DoD developed, in the 1950s and 1960s, an acquisition system oriented toward the hothouse development of science and technology in military applications. Using up to a third of the nation's engineers, DoD supported very high levels of R&D, prototyping and testing. A defense industrial base was created largely distinct from and (at the time) technologically superior to the commercial industrial base of which it was part. Four nearly four decades after WWII, the United States enjoyed unquestioned technological advantage over all other nations, friend and foe alike. With technology's leading edge inside the system, access to it was automatic.

Changes in the world economy and in technology itself have now made assured access to technology very much an issue: Civil and defense technologies—electronics and computers, in particular—have converged. Civil technology is now often several years ahead of defense technology. Defense systems have not incorporated civil technology as well as they could have. Barriers include the military's unique product specifications, standards, cost accounting and auditing requirements, highly regulated purchasing practices, and various trade strictures. Recently heightened sensitivity to possible criminal action from oversight has persuaded many companies to separate further their military and commercial facilities. The leading edge of many critical technologies—particularly those in electronics, optics, materials, and manufacturing equipment and processes—has moved offshore. Successive generations of weapons are increasingly dependent on foreign parts. Many domestic firms—weakened by sharp and sometimes unfair trading practices—have been bought by their foreign competitors. An increasing number of firms, particularly defense companies, are for sale. Much of the foreign direct investment has been beneficial. Moreover, having foreign-owned facilities in the United States is better than depending on those overseas. Yet some capabilities are being lost, reducing DoD access to technology, and more may be lost in the future. Although the United States leads the world in total R&D spending, others—Japan or West Germany—now spend as much of their output on commercial R&D as the United States spends on all R&D, civil and military. Competitiveness—a growing national security issue—requires the United States to generate more commercial synergies from DoD's share. Civil economies and military battlefields alike are being transformed by the digital information revolution linking computers, communications, sensors, machinery, and displays. While foreign firms are investing large sums in high resolution production facilities, domestic firms have shied away from making the large-scale, long-term investments required for successful commercialization. Foreign vendors stand to dominate strategic markets for high resolution products. Such products—integrating flat-panel, memory, and processor technologies—could become discriminating features of future computer systems. Other countries would thus gain a strong base from which to dominate the computer industry, one of our most strategic sectors. The electronics content of new weapons systems has never been higher. It accounts for more than 50% of new aircraft, 60% of new space systems, and 85% of precision guided munitions. Yet, the United States is rapidly losing its infrastructure of electronic and optics manufacturing. Japanese and European firms, many with heavy government support, are spending billions of dollars a year to develop their capabilities. This is an issue of great urgency. It is not enough to assemble products made from imported components; the ability to influence the development and distribution of these components affects all systems, both civil and military, that use them. Finally, dramatic developments in Eastern Europe allow the necessary levels of national security to be bought with fewer defense dollars. Falling budgets mean fewer orders. If the defense base cannot diversify, it will be less able to stay on the leading edge everywhere that it should.

These changes mean that DoD's current paradigm of unique technology development, with its distinct domestic defense base, needs to be reassessed.

Technology, as such, ought to be understood in its broadest context. It transcends the building of functioning prototypes to encompass manufacturing capabilities and processes, total quality management (TQM) regimes, methods of continuous improvement and adaptation to customer needs. Because technology must be a self-sustaining dynamic, technology policies must encompass industrial development. Support of R&D alone is necessary but it is not enough if it simply develops products for others to make.

To nurture technology requires networks of industries, linked by flows of not only business, but also interesting problems, information and know-how. Most such links require local access. Business still flows in grooves cut by historical relationships and by common languages, habits, and institutions. Frequent face-to-face interaction remains key to problem solving. Access to good networks helps producers develop the knowledge and skills that make them first in line for opportunities to supply the next generation of items. A strong core of critical technologies and industries—even if they primarily serve civilian markets—is needed to feed these high-energy links and so to promote technological development that DoD relies on.

To support a strategy that relies on access to the leading edge, DoD must tap the best technology from the civil side and reduce risks caused by dependence on foreign technology. This requires a new approach to development and acquisition.

THE RISKS OF FOREIGN DEPENDENCE

When a rising share of the world's best technology lies overseas, a policy that can tap this technology is necessary for defense. Some reliable foreign scouring is acceptable; it can be an efficient way for DoD to keep an eye on foreign developments in critical areas. But if the United States has no choice but to source overseas it faces real risks.

It is not the possibility of a sudden cut-off of material which is most worrisome. At real risk is DoD's access to leading-edge technology development.

Techno-military competition is an interactive process of measure and countermeasure. DoD has to respond continually to emergent threats (e. g., suddenly quieter Soviet submarines) and technological opportunities (e. g., superconductivity). Its action-reaction loop must be tight. It must be able to pulse its supplier base and get responses quickly. This base must be tightly linked, and completely accessible.

Foreign dependence puts both the tight links, and the assured access, at risk. Even when technology-intensive products are available to commercial users in world markets, military needs are special.

Foreign firms are less sensitive to military needs, less responsive to any defense emergencies we may face, and harder to monitor in general. DoD cannot use the Defense Production Act to get deliveries on time regardless of competing pressures. DoD often cannot ask foreign firms to develop chips or materials without giving away sensitive system data.

Foreign firms may not want to or be allowed to be associated with DoD. For example, during the Vietnam War the United States had difficulty getting TV-cameras for missile mounts. Japan's Diet held long debates over whether Kyocera should supply ceramic parts for our cruise missiles.

Without suppliers close at hand, DoD would also have a harder time learning about new technological possibilities, recognizing promising avenues for development, and establishing parameters for new defense systems. Without frequent face-to-face contact, much of the give and take required to develop technologies would simply never take place. Key technical literature is translated into English with a time lag, if at all.

More broadly, the departure of an industry overseas tends to weaken upstream and downstream industries. Producers of sophisticated computers and telecommunications have experienced delayed deliveries of high-speed chips from semiconductor divisions of their Japanese competitors. One domestic firm had to locate a printer factory in Japan to get etching equipment to make print heads. Automakers and chipmakers both report a one- to two-year lag in getting the best equipment from abroad. Depending on chips and equipment one day can lead to a dependence on supercomputers, avionics, and precision parts the next.

Growing dependence also feeds a corresponding shift in power relationships. DoD exports many subsystems as black boxes and forbids their transfer to third parties. More generally, as the leader of the Western alliance, the United States needs the freedom to take actions that our allies may wish to distance themselves from publicly. Foreign dependence complicates such actions; it allows others to "say no" to us, and make it stick.

The United States might be able to tolerate a degree of dependence on multiple open sources with multinational perspectives. To depend on a single, closed, and centralized source with a national perspective is more dangerous. A tight network of industries and supporting institutions that dominate key technologies could have the power to: keep the best technology and manufacturing problems (and hence learning opportunities) for itself; set the terms on which technology is traded; and in some cases, co-opt rival coalitions here.

In industry after industry, the window of opportunity for getting access to the network of technology development is closing. Banks are loath to finance head-to-head competition against overseas power centers with proven technological track records. Because today's competitors want to trade rather than license technology, the fewer uniquely good technologies firms have, the more they have to buy, and the harder it is to get good value for what they have in return.

Senator GORE. On page 5 it says that chip makers report a 1-year to 2-year lag in getting the best equipment from abroad. Depending on chips and equipment one day can lead to a dependence on supercomputers, avionics, and precision parts the next.

Do you agree with that, Dr. Herzfeld?

Dr. HERZFELD. I think the trend that is described here does occasionally surface. I do not know how universal it is, but it certainly is not an isolated case. It is clear that for the long run that constitutes a matter of concern for all of us. And I have been concerned about this for some time as you may know.

In terms of direct threat to national security, I think that case is weak because we rarely introduce the most modern technology very quickly into weapons systems and such. So there is a time lag in our process. And very often these things meet up just about in time. But I think the phenomenon you described is a matter for concern.

Senator GORE. All right. Now, Mr. McBride, you said in your statement that the Commerce Department considers cumulative changes, is that correct?

Mr. MCBRIDE. That is correct, sir.

Senator GORE. When does this enter into your evaluation of proposed purchases under Exon-Florio?

Mr. MCBRIDE. As I understand it, sir, and as I described in my testimony, the threshold at which the cumulative effects have an impact on national security is difficult to define. I understand we relied very heavily in this case on the importance of defining or determining whether credible evidence existed that national security would be impaired, and that we did not find such evidence, even in the context of cumulative effects.

Senator GORE. Well, I think you may be confusing credible evidence and cumulative pattern.

Can you name an instance where cumulative changes were considered in the evaluation of a proposed purchase under Exon-Florio?

Mr. MCBRIDE. I cannot, sir. But I can provide—perhaps one of my colleagues can.

Senator GORE. Mr. Canner?

Mr. CANNER. Perhaps I could give some examples, sir, without getting too much into the details of the transactions because they are proprietary.

But in the two that you mentioned, Monsanto-Huels, the purchase of Monsanto's wafer division by Huels, and the Union Carbide, I think here we faced a situation where the industry was undercapitalized and firms were leaving the sector. They were leaving the industry because they could not make a profit. They were also foreign takeovers prior to Exon-Florio that did not require a Government review.

So when you come down to the last major supplier of silicon wafers or ultra-high-purity gas, for which there may or may not be a commercial market, the question you have to ask yourself from a national security standpoint is, are we better off seeing these firms go belly up, leaving us with no domestic capability to produce these elements that are needed for our military and industrial base? Or are we better off having them on our soil, subject to our laws, and if need be, to the provisions of the Defense Production Act, whereby their production can be captured, so to speak, by Government officials to produce for the military.

In those instances, where we look at the cumulative effect and you get down to the last supplier or the next-to-the-last supplier, we have made recommendations to the President reflecting the view that we are obviously better

off having an entity here on our soil, producing in the United States, subject to our laws, rather than seeing these firms go offshore or go belly up.

Senator GORE. Mr. Canner, you are familiar with the purposes for which SEMATECH was established, are you not?

Mr. CANNER. Yes, sir.

Senator GORE. Could you summarize those?

Mr. CANNER. It is a research consortium of private companies that is funded partly by the Defense Department and partly by the members of the consortium to enhance our competitive edge, so to speak, in the production of semiconductors.

Senator GORE. Is there anything that the members of the consortium have in common?

Mr. CANNER. I believe they are all in the food chain of semiconductors.

Senator GORE. Anything else?

Mr. CANNER. They are U.S. companies, sir, that is correct.

Senator GORE. And what is the purpose of SEMATECH?

Mr. CANNER. Well, I think I indicated it is to enhance our competitive edge for U.S. companies.

Senator GORE. Versus? Our competitive edge versus whom?

Mr. CANNER. To strengthen our industrial base. Obviously to strengthen our industrial base vis-a-vis foreign competition, global competition.

Senator GORE. Who is our most formidable competitor with regard to—and if I could finish the question—who is our most formidable competitor in the semiconductor business?

Mr. CANNER. Obviously, I believe, it is Japan.

Senator GORE. So SEMATECH, in your view, was established by the Government of the United States, with taxpayer funding, in cooperation with U.S. electronics firms in order for our industry to be more competitive with the Japanese and others in the same business. Correct? Is that a fair summary?

Mr. CANNER. Well, that is what I believe I stated. And I believe that is accurate, although not a technical, description of their charter. But it is a layman's summary of what they are supposed to do.

I may also add, sir, that while it is limited—the membership is limited, to U.S. companies, SEMATECH has in the past used foreign suppliers. They do have that flexibility. They buy wafers from foreigners. They bought certain types of materials and equipment from, I believe, Nikon and other foreign suppliers. But they prefer, obviously by their charter, to do business with U.S. suppliers.

Senator GORE. And they have developed procedures inside SEMATECH to determine when it is in the national interest to rely on a foreign supplier and when it is not, correct?

We will get that from the SEMATECH witness.

Mr. CANNER. I think you would have to ask them how they make that decision. I believe it is a vote of the board or some management procedure. But I think that SEMATECH would have to answer that.

Senator GORE. Do you think that it is in our national security interest for SEMATECH to succeed?

Mr. CANNER. I would say yes, sir.

Senator GORE. In fact, the Congress, in establishing this program, made the following finding and I quote from the law signed by the President of the United States, "The Congress finds that it is in the national economic and security interests of the United States for the Department of Defense to provide financial assistance to the industry consortium known as SEMATECH for research and development activities in the field of semiconductor manufacturing technology."

If our national security is a basis for the taxpayers' investment in SEMATECH and if SEMATECH comes to rely on a company it has nurtured to provide a key technology necessary for the pursuit of its purposes, and that supplier providing that key technology is then the target of a takeover attempt by the principal competitor against which SEMATECH was organized to compete, then we have in my view a national security interest in finding what it is that has led SEMATECH to define this supplier as essential.

It seems to me, as I have already said in different language, unbelievable that the purchase of this particular firm by a Japanese competitor would be approved.

But my question is, on what basis did you determine that our national security was not involved, given that SEMATECH was established for national security purposes?

Mr. CANNER. There were two focuses of attention, primary focuses of attention, sir, and perhaps Mr. Rudman would like to add to this. One was the assessment of the technology per se and the importance and the uniqueness, if you will, of this technology. And the second consideration was, as SEMATECH made clear to us, was the presence of this five-man team.

Perhaps Mr. Rudman or the other gentlemen would like to comment on the technology and the uniqueness of this technology and the availability of other suppliers for the pure gas systems.

Senator GORE. What definition of national security were you using?

Mr. CANNER. Sir, we have a case-by-case approach on each transaction because truly they are all different. In the final analysis, after hearing the concerns of all of the CFIUS agencies and the participants within those agencies who make their views known either to us directly or through the various interagency meetings that we have, we sit down and we say, okay, these are all of your concerns. That is sort of on the one hand, in one column.

And then in the other column, we have to match those concerns up against the criteria of the law of credible evidence of the foreign entity taking an action that may threaten the national security.

And in making that judgment and recommendation, if you will, to the President we have to be careful to guard against the fact that establishment of a foreign entity per se or taking over a business per se is not against the Exon-Florio provision.

What we do say in Exon-Florio is that there is an extra hurdle. That if a foreign entity does take over a U.S. entity, the President in some instances, and in other instances the committee acting at the assistant secretary level, must make those decisions if there is credible evidence of threats to national security.

Quite frankly, that is the way we operate. We lay it all out, we bring the presidential appointees to a meeting or the duly delegated representatives with instructions from the presidential appointees, and we say, okay, these were the concerns, this is what we investigated, this is what we found. What do the presidential appointees advise the President?

Senator GORE. I want to pursue this because this is one of the critical points. But in just one moment I want to ask the witness from SEMATECH to come up and give a statement. But before doing that, let me ask you, did you receive any views from the President's science advisor on this proposed sale?

Mr. CANNER. The staff of the office of the White House science advisor did participate with us in conducting an assessment of the technology involved, yes. And that assessment was shared with all CFIUS agencies and signed off on, so to speak, or concurred in by all CFIUS agencies and, I believe, the constituents within that agency. It certainly was concurred in by DARPA.

Senator GORE. Excuse me, I am not sure I got an answer to the question.

Did you receive any views from the President's science advisor on this proposed sale?

Mr. CANNER. We received no direct communication from the White House science advisor. Their input to the process was through the staff in participating in the CFIUS discussions and deliberations.

Senator GORE. You did not receive any direct views from the science advisor. Did you receive any views from the President's science advisor with respect to this proposed sale?

Mr. CANNER. None were made to the CFIUS, sir.

Senator GORE. Are you aware of any views expressed with respect to this proposed sale by the President's science advisor?

Mr. CANNER. I am aware that after—I believe it was after—the President made his decision that the science advisor wrote a letter—I do not know to whom it was addressed—and he expressed his concerns in that letter.

Senator GORE. When did the President approve the sale?

Mr. CANNER. July 27th.

Senator GORE. Mr. McBride, are you aware of any views expressed by the President's science advisor with regard to this proposed sale?

Mr. MCBRIDE. I am not aware of the President's science advisor's involvement in this.

Senator GORE. Mr. Canner, you said that the President's science advisor wrote a letter to someone, you do not know who.

Mr. CANNER. I do not know the exact person, I think maybe it was to somebody in the Defense Department. And I believe that was written after the President's decision, sir.

Had it gone to the Defense Department or to any other member of CFIUS prior to the President's decision, it would have been immediately brought into the process.

Senator GORE. Mr. Rudman, are you aware of such a letter?

Mr. RUDMAN. Sir, I believe there may be a letter and I will try to locate it. I am not positive there is one.

Senator GORE. You are not sure?

Mr. RUDMAN. There may be one.

Senator GORE. Are you the person in the Defense Department who handles CFIUS?

Mr. RUDMAN. Yes, sir, I am.

Senator GORE. If the President's science advisor wrote the Defense Department in opposition to a proposed sale, would you not be aware of it?

Mr. RUDMAN. I should be. Unfortunately, it does not always work that way.

Senator GORE. Are you aware of this letter?

Mr. RUDMAN. I think there is a letter, and I am going to try to locate it as quickly as I can. We did not get the letter. The letter may have gone into some other level or some other entity in DOD. It should come to us eventually. If it came after the process was over, we may never have received it.

Senator GORE. Dr. Herzfeld, are you aware of such a letter?

Dr. HERZFELD. Yes, I believe there was a letter.

Senator GORE. Have you seen the letter?

Dr. HERZFELD. Yes.

Senator GORE. What did it say?

Dr. HERZFELD. It expressed concern about the transaction.

Senator GORE. Did that cause concern on your part?

Dr. HERZFELD. Well, I was concerned before I saw the letter. I do not have a complete recall of what the letter said, but it also acknowledged the absence of a clear national security threat, as best I recall.

Senator GORE. Have you seen the letter, Mr. Canner?

Mr. CANNER. I believe I did see it, sir.

Senator GORE. Well, a minute ago you were not quite sure that you were aware of any views from the President's science advisor.

Mr. CANNER. No, I said I believed that there was a letter. It was not addressed to CFIUS. So, I was aware of it. And I was aware of it because I believe I saw it.

Senator GORE. I see. Well, I would have had difficulty getting that impression from your first responses to my questions.

Mr. CANNER. Well, I am sorry I was not very clear about that, sir.

Senator GORE. You were not very clear.

Mr. CANNER. I will try to be a little more clear in answering future questions.

Mr. NIEHUSS. Mr. Chairman, could I just add one comment?

The office of the President's science advisor was represented in some of the CFIUS staff level meetings. So there was ample opportunity at every stage of the transaction for the advisor through his representative to make his views known to the CFIUS process. That did not happen, as the panel has indicated.

The letter that went, went a separate channel, not a CFIUS-type channel.

Senator GORE. Could you provide this letter to the subcommittee, Mr. Niehuss?

Mr. NIEHUSS. I can say categorically I have not seen the letter.

Senator GORE. Mr. Canner, do you have this letter in your files?

Mr. CANNER. I believe it is there. I would have to check, sir.

Senator GORE. Could you provide this letter to the subcommittee?

Mr. CANNER. I would have to check with legal counsel, sir, because the provisions of Exon-Florio say that all the information that is submitted to CFIUS or that comes to CFIUS is exempt from public disclosure. I would have to check with the Treasury general counsel's office to see if we could do so. Certainly, we want to try to cooperate with you in every effort we can. But we will have to be guided by counsel on that matter, given the provisions of confidentiality.

Senator GORE. I know how cooperative you want to be, Mr. Canner. And I look forward to your response after that review.

But you can say at this point that the President's science advisor in that letter was opposed to the sale?

Mr. CANNER. I cannot recall from memory whether he said he was opposed to the sale.

Senator GORE. Was he in favor of the sale? Was he writing to encourage you to approve it?

Mr. CANNER. I do recall that he expressed concerns about the sale. Whether he went so far as to say that he was opposed to the sale or to give the President advice as to what he should do, I cannot recall, sir. I would have to check and see if we have the letter in the files and what it said.

Senator GORE. All right. If you all would remain at the witness table, with the exception of Dr. Herzfeld. I am informed that he must leave early but if you can stay, we would like you to.

Dr. HERZFELD. I would prefer to stay. I think this is more important than what I was going back to the Pentagon for.

Senator GORE. I would like to ask Mr. Peter Mills, Chief Administrative Officer of SEMATECH, to—if the staff could pull up a chair at the end of the table there by Mr. Rudman, that would be appreciated.

Mr. Mills, I know that you, along with perhaps some others, did not find it all that convenient to be here today, and I insisted. And I appreciate you respecting my request on this matter.

We did have an opportunity to discuss this August 1st, but I felt it would be important to have the perspective of SEMATECH as we continue to pursue this matter. So if you could provide your statement at this point, we will then go into some questions and get some cross questions back and forth.

**STATEMENT OF PETER H. MILLS, CHIEF ADMINISTRATIVE
OFFICER, SEMATECH, AUSTIN, TX**

Mr. MILLS. Thank you, Mr. Chairman. As you know, SEMATECH has a unique working relationship with Semi-Gas, which is a key member of our specialty gas team and an essential element in our ability to do research into semiconductor manufacturing techniques.

As we have said before, the impending sale of Semi-Gas to Nippon Sanso poses a serious threat to SEMATECH. Our mission is to provide the capability of United States leadership in critical technologies for semiconductor manufacturing. Semi-Gas, through its partnership with SEMATECH, has developed that capability. Through a joint development project with SEMATECH, Semi-Gas has been able to improve its gas purity levels tenfold, making it a world leader in gas cabinet technology.

We estimate that the technology Semi-Gas has developed with SEMATECH is at least 2 years ahead of any gas cabinet technology that Nippon Sanso or any other company in the world has today. Therefore, SEMATECH is very concerned that the sale of Semi-Gas to Nippon Sanso would result in the transfer of proprietary intellectual properties to a foreign competitor.

You know, that is the real issue here. Partnering with United States firms to develop the domestic capability is what SEMATECH is all about, and a confidentiality arrangements around protecting five individuals really has very little to do with the scope of joint development projects that reach out into future generation capability. It is much broader than a product that would be dropped at the loading dock out back. They are an integral partner of SEMATECH.

Since I last appeared before your subcommittee on August 1, the situation regarding the sale of Semi-Gas has not changed. Our understanding is that the Justice Department is continuing its investigation into the antitrust implications of the sale and a decision will be announced very soon.

As a result of the CFIUS action, SEMATECH has been forced to find another means to protect its sensitive technology developed with Semi-Gas. We are presently working aggressively on that, and we are steadfast in our commitment that we will not allow this sale to jeopardize either SEMATECH or its national mission.

As I testified in August, we believe that the CFIUS process, as it presently stands, is inadequate and merits changes. The definition of national security is too narrow and should be broadened beyond a strict military interpretation, as you have been discussing here.

A second problem with the present CFIUS law is that it does not provide for early notification of proposed sales to foreign entities. In fact, the CFIUS process usually begins only when a sale has been set. In the case of Semi-Gas, we would not have had the opportunity to seek a CFIUS review had not Dr. Sam Harrell, president of Semi-SEMATECH, received a letter from the president of Semi-Gas. A third concern—

Senator GORE. Say that again?

Mr. MILLS. The notification that we got of the sale of Semi-Gas came from the president of Semi-Gas to Semi-SEMATECH, who then alerted SEMATECH. We in turn raised the issue with CFIUS and asked for a review. Which is—I mean, that is typically how the process works. And my concern with that is that it is after the fact; there is no early warning mechanism.

A third concern we have with the CFIUS process is that it is far too secretive. We appeared before CFIUS and provided information requested by CFIUS about the Semi-Gas sale. However, we only learned about the proposed confidentiality agreement through the Wall Street Journal. And because we were not officially a party in the transaction, we were told that CFIUS would not provide any other information about the hearing to us.

The CFIUS law could also be strengthened by including a monitoring mechanism to ensure that any requirements made to complete a transaction are adhered to by all parties.

Finally, some consideration must be given by CFIUS to the cumulative effect of multiple transactions, just as you have discussed here. Surely the repeated sale of U.S. semiconductor equipment and materials firms to foreign competitors has an adverse effect on this country.

What we are seeing today in the semiconductor materials and equipment industry is a pattern and practice whereby wealthy foreign corporations can come in and purchase struggling or even, as in this case, healthy U.S. firms. The result is that America's technological jewels are being sold off one by one. We are not only losing the domestic source of technical expertise, we are also losing robust, competitive small businesses. Mr. Chairman, we cannot afford to lose strategic businesses of any size in this country.

As the father of the semiconductor industry and the first president and CEO of SEMATECH, the late Dr. Robert Noyce, stated, "Can I live without Semi-Gas? That is like asking me if I can live without several of my fingers. Yeah, I can. But how many fingers or limbs do you cut off before I become competitively disabled?"

Mr. Chairman, since SEMATECH was formed in 1987, foreign interests have sliced off more than 35 of America's semiconductor equipment and materials fingers, 18 of those to Japan. Therefore, we urge the Congress and the administration to work together and address these key competitive issues. If we have learned one thing at SEMATECH, it is that American know-how and American teamwork is an unbeatable solution.

Thank you.

Senator GORE. Thank you very much, Mr. Mills.

We heard earlier from Mr. Canner that, in his view, Dr. Noyce felt—I do not want to inaccurately paraphrase, but I got the impression that he said Dr. Noyce would have approved of this, that it was, would have been seen by Dr. Noyce as a natural commercial transaction. It would be all right.

You do not seem to recall his—you quoted—I see you shaking your head.

You quoted Dr. Noyce as saying what? What was it you quoted?

Mr. CANNER. What I was quoting from Dr. Noyce was from a submission to the CFIUS in response to questions that we put—that we asked SEMATECH to address. And their was, regarding intellectual property rights and co-development work. I was trying to address the point as the extent to which Semi-Gas' technology was based on property rights or technology that was owned by SEMATECH.

And what I was quoting was a partial excerpt from the answer in which he said that if a SEMATECH employee and a Semi-Gas employee jointly made a patentable invention, any resultant patent would be jointly owned by

SEMATECH and Semi-Gas. So, on the one hand, we have his statement for the record from Dr. Noyce saying that if there was technology arising from this collaboration, it would be jointly owned. And this was submitted for the record by Dr. Noyce—

Senator GORE. Your point is that SEMATECH would continue to have access to that intellectual property created by Semi-Gas under contract to SEMATECH, is that your point?

Mr. CANNER. No, I think my point is to try to perhaps bring some facts to bear on whose technology, whose technology was it, so to speak, in terms of Semi-Gas' rise to a leadership position in the field. Semi-Gas says it was their money, their resources, their technology.

The statement which I read to you from the letter by Dr. Noyce indicates that if there was any SEMATECH technology involved here, in patents, it would be jointly owned. And yet, we have had no indication from SEMATECH whether there are any jointly owned patents.

Senator GORE. Mr. Mills, perhaps you could shed some light on this point.

Mr. MILLS. The very nature of joint development projects at SEMATECH is one of developing the strength of the infrastructure to the semiconductor industry. We leverage our dollars in concert with dollars provided by our partners in the equipment and materials industry.

For every dollar that we put into a development project, typically, the leverage we gain from that is \$2 to \$3 provided by the equipment and materials supplier. The intent of that, of course, is to collaborate on future generation capabilities, so that in fact we have robust, healthy, companies, domestic companies, to provide those capabilities to our membership.

Senator GORE. Now, here is a letter, and I would just ask unanimous consent to put this letter in the record. It is from the late Robert N. Noyce, president and CEO of SEMATECH, writing on May 18 of this year to protest the purchase of Semi-Gas Systems by Nippon Sanso, and referring specifically to the anticompetitive consequences that will result.

[The letter referred to follows:]

SEMATECH

INNOVATION FOR AMERICA'S FUTURE

925718

May 18, 1990

VIA FACSIMILE 202/633-1023
& OVERNIGHT COURIER

James F. Rill
Assistant Attorney General
Antitrust Division
U.S. Department of Justice
Constitution Ave. & 10th St. N.W.
Washington, D. C. 20530

RE: Nippon Sanso Acquisition of Semi-Gas

Dear Mr. Rill:

We are writing to express our concern about the antitrust implications of the acquisition of Semi-Gas Systems Inc. ("Semi-Gas"), a wholly-owned subsidiary of Hercules Incorporated, by Matheson Gas Products Inc., a wholly-owned subsidiary of Nippon Sanso K.K. ("Nippon Sanso"). Based on the data available to us, it appears that the acquisition violates the U.S. Department of Justice Merger Guidelines (the "Merger Guidelines") and that it poses a grave risk of anticompetitive behavior in a market that is critical to the semiconductor industry. 

As you know, SEMATECH is a consortium of 14 U.S. companies whose mission is to restore the competitiveness of U.S. semiconductor manufacturing and the strength of the industrial base in semiconductors that supports U.S. national defense. Approximately 150 U.S. companies in the semiconductor equipment and materials industry work with SEMATECH through SEMI-SEMATECH. The U.S. Defense Department is a major participant and investor in SEMATECH.

We believe the relevant product market for purposes of this analysis is gas cabinets for use in semiconductor manufacturing. These gas cabinets are specialized equipment for the safe containment, control, and maintenance of purity of very high purity, reactive gases. Although there are several types of gas cabinets that compete with one another, there is no other product that is a practical alternative to these cabinets for state-of-the-art semiconductor production. Using the standards for market definition set forth in the Merger Guidelines, gas cabinets constitute a relevant market because there are no practical alternatives to which customers could turn in response to a small

James F. Rill
 Assistant Attorney General
 May 18, 1990
 page 2

but significant and non-transitory increase in price so as to make the price increase unprofitable. In sum, there are no close substitutes for gas cabinets.

The relevant geographic market in which gas cabinets are traded is worldwide. Semi-Gas, a U.S. corporation, sells gas cabinets in the U.S., Japan, Europe, Korea, Singapore and Taiwan. Low transportation costs relative to the value of the gas cabinets makes international shipment economical. As is the case with semiconductor products ranging from semiconductors themselves to lithography equipment and other materials used in the manufacturing of semiconductors, competition can only be meaningfully assessed on a worldwide basis.

To the best of our knowledge, there are no publicly available market share data regarding the gas cabinet market. We have, however, obtained market share estimates from two sources. First, we attach as Exhibit A a chart which we recently received from Semi-Gas setting forth the worldwide gas cabinet market shares. Second, we attach as Exhibit B a chart generated by the Department of Commerce from information provided by Dataquest, an organization that specializes in the collection of data relating to the semiconductor industry. Using the Semi-Gas data -- which reflect lower market shares for the merging companies and a less concentrated market -- the proposed merger clearly exceeds  acceptable thresholds under the Merger Guidelines.

Based upon the Semi-Gas data, the market shares for the worldwide semiconductor gas cabinet market are as follows:

1989 MARKET SHARE FOR GAS CABINETS

Nippon Sanso	23.2%
Semi-Gas	20.2%
L'Air Liquide	13.2%
Air Products	11.4%
BOC	7.7%
Others	24.3%

We assume that you will be able to obtain precise data on market shares in the gas cabinet industry. If, however, the actual data is even remotely close to that available to SEMATECH, the anticompetitive consequences of the acquisition of Semi-Gas by Nippon Sanso are evident. The acquisition is well above the thresholds that the Merger Guidelines have established and will join the numbers one and two firms in the market to create a combined company with a 43.4% market share. The post-merger Herfindahl-Hirschman Index ("HHI") is approximately 2300, and the increase in HHI is approximately 937. Under the Merger Guidelines,

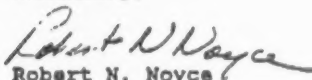
James F. Rill
 Assistant Attorney General
 May 18, 1990
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an acquisition will be challenged, except under extraordinary circumstances, if the post-merger HHI is more than 1800 and the change in HHI is more than 50. Obviously, the HHI and change in HHI here far exceed these thresholds.

There exist no extraordinary circumstances present here that obviate the anticompetitive risks of this acquisition. In particular, the gas cabinet industry is not a market in which entry is so easy that a price increase in the range of five percent would likely be frustrated by prompt and substantial entry. It would be by no means easy or trivial for a company outside the market to find highly qualified technical personnel and obtain the technology that entry would require. In addition, market penetration is highly dependent on well-established relationships between the cabinet manufacturer and the semiconductor producer. Furthermore, because of the huge risk associated with high technology fields, where a given technology may simply not be accepted and the firm that developed it may be left having made a significant financial investment in a worthless asset, entry is all the more unlikely. We do not mean to imply that theoretically no other firm could enter the market. Rather, the likelihood that the Merger Guidelines' small but significant and non-transitory increase in price would provide the incentive to do so on the scale necessary to restore competitive prices is minimal.

For all the foregoing reasons, we urge that you take all appropriate actions to prevent the acquisition of Semi-Gas by Nippon Sanso.

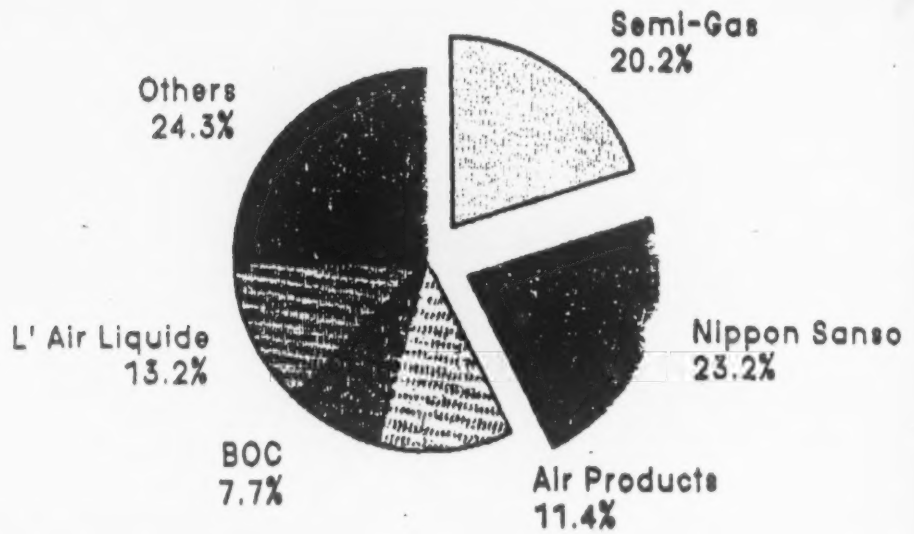
Sincerely,


 Robert N. Noyce
 President and
 Chief Executive Officer

Attachments

cc: The Honorable Robert A. Mosbacher
 Secretary of Commerce

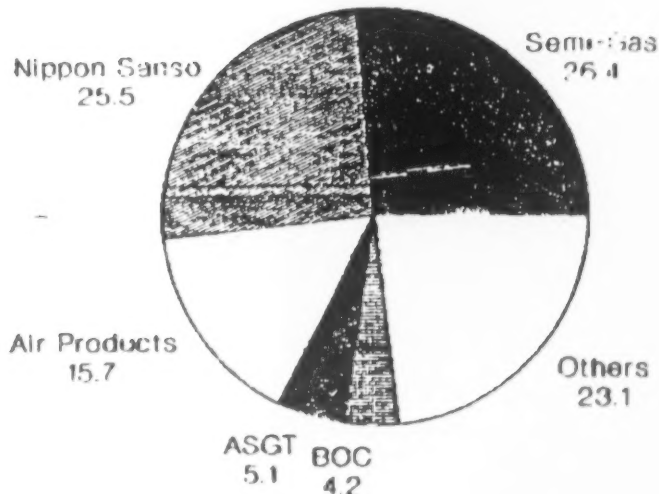
The Honorable Dick Thornburgh
 Attorney General of the United States

MARKET SHARE**WORLD**

Total Market \$113 Million

05-03-80

Worldwide Market Share for Gas Cabinets 1989 Estimates by Dataquest Analyst (%)



Mr. NIEHUSS. Mr. Chairman, I just wonder whether Mr. Mills could tell us how much money SEMATECH has put into the development of Semi-Gas?

Senator GORE. Well, let me ask the questions.

Mr. NIEHUSS. I thought you wanted a collegial discussion.

Senator GORE. Let us explore the relationship between SEMATECH and Semi-Gas and why you believe that the sale of Semi-Gas to Nippon Sanso poses a serious threat to SEMATECH. How does the relationship with SEMATECH assist Semi-Gas?

Mr. MILLS. Well, there is no question—and let me first divert to just a statement in terms of sheer value in the marketplace.

The only fundamental difference between when Hercules purchased Semi-Gas 3 years ago for \$5 to \$7 million and when Hercules was looking to sell to Nippon Sanso today at \$23 million is their relationship with SEMATECH, so obviously, in terms of market perception, there has been tremendous value added by SEMATECH.

In specific terms, from a technological perspective, what we provide to all of the partners that we engage in these joint development relationships with is a forum for them to develop future generation capability, be that half-micron or .35 micron line widths in the future with 14 of their largest customers in the world. So it provides an excellent opportunity for them to minimize their risk and get that kind of exposure and benefit from all 14 of their largest customers at one time.

Senator GORE. After its association with SEMATECH, did Semi-Gas start gaining significant market share inside Japan against Japanese domestic competition?

Mr. MILLS. Yes. No question. They increased their market share precipitously in Japan, and we believed that that was one of the fundamental things that attracted Nippon Sanso to Semi-Gas.

Senator GORE. So one of the motivations of Nippon Sanso in purchasing Semi-Gas may well be to stifle domestic competition from Semi-Gas inside Japan.

Mr. MILLS. Certainly, I think, more than that. It was just a very attractive target for them in the interests of world dominance in that particular arena.

Senator GORE. They are the largest company in this particular sub-field now, correct?

Mr. MILLS. Yes. It is a very unique niche, and clearly, as line widths get narrower and narrower in future generation capability, high purity gases is absolutely essential. It is raised to an exponent in terms of importance to the future manufacturing capability in the world.

Senator GORE. In fact, if you look at the entire world market in this niche, Nippon Sanso in 1989 was Number 1, with 23.2 percent, and Semi-Gas was Number 2, with 20.2 percent. That is the market share for gas cabinets. Now, does that encompass the market, or is that a part of it?

Mr. MILLS. That is for gas cabinets, and since that time, Semi-Gas has surpassed Nippon Sanso in market share leadership worldwide.

Senator GORE. Now, is it true that some of the principals in Semi-Gas attempted to organize their own leveraged buy-out, or purchase, of Semi-Gas so that it would not fall into Japanese hands?

Mr. MILLS. Yes. They put together a leveraged buy-out offer that came up short of the \$23 million that Nippon Sanso offered. An interesting side-light to that, their offer was \$18 million. Nippon Sanso offered \$23 million. Nippon Sanso had earlier acquired another U.S. company a year ago named Matheson Gas, and due to the losses that Matheson Gas had incurred, they were able to use that tax loss carry forward to offset the purchase price by nearly 50 percent, so in fact their price was some half of \$23 million.

Senator GORE. That is interesting.

Mr. MILLS. Well, in a sense, you could say the U.S. taxpayers are funding half of that.

Senator GORE. Did the principals of Semi-Gas attempting to buy-out this company, who, because they could not take advantage of the tax loss carry forward gained by Nippon Sanso in the purchase of another American competitor a year earlier—and thus were in effect paying more in real dollars but not in dollars brought to the marketplace—did they attempt to get some more time to try and persuade Hercules to sell to them, or to try to raise more venture capital to bring their purchase price, their offer, into line with Nippon Sanso?

Mr. MILLS. Yes, and we—SEMATECH—also encouraged Hercules to allow for more time to strengthen the owners or the management team's LBO. I would point out, though, that I cannot fault Hercules, other than perhaps a lack of patriotism for selling to the highest bidder, and that is what they did.

Senator GORE. Well, I can fault Hercules, and it pains me, because I know some of those folks, but I think they did basically what former President Reagan did in taking \$2 million to go over to Japan. It is understandable, but it is not right.

When they asked for more time, did they or you communicate to the Commerce Department the advisability of allowing a little more time for this other potential purchaser so the company would not fall into Japanese hands?

Mr. MILLS. I do not recall exactly when we first made contact with our friends at the Commerce Department regarding this sale. We talked to them at some point

during the spring, and I can find out that exact date for you, but we had some dialogue, as did Semi-Gas, with Commerce Department officials. It may well have been after the sale had been announced—the proposed sale had been announced.

Senator GORE. Mr. Niehuss, were you aware that there was an alternative to the Nippon Sanso purchase?

Mr. NIEHUSS. We were aware of that, yes, sir.

Senator GORE. Were you aware they were trying to get a little more time to put together a competitive offer?

Mr. NIEHUSS. I would have to ask Mr. Canner to comment on the details of that.

Mr. CANNER. We were aware of the proposed management buy-out, but in terms of the specifics of their wanting more time, no, I was not aware of that.

Senator GORE. Mr. Mills, did you have anything else to offer on this particular point?

Mr. MILLS. No.

Senator GORE. Mr. Mills, Mr. Canner or Mr. Niehuss said earlier that SEMATECH was given ample notice to express its views on this proposed sale to Nippon Sanso. How much notice were you given to present your views in the process?

Mr. MILLS. Oh, that is difficult to recall. We did respond to the Treasury Department's request for information. I know in one case we did—we did provide—I believe, one request was over a holiday weekend, and another request was next day, was 1-day turnaround. We flew somebody out from the West Coast who was there on business to appear before the subcommittee—before the CFIUS committee.

Senator GORE. 1 day's notice?

Mr. MILLS. In that particular case, yes.

Mr. NIEHUSS. Mr. Chairman, can I just—

Senator GORE. Yes. This came up in the August 1st hearing, yes.

Mr. NIEHUSS. Can I just submit the facts for the record?

On May 16, Mr. Canner sent a letter to SEMATECH asking you to respond to questions. So at that stage, the 16th of May, SEMATECH was aware of the transaction, was in dialogue with the Committee on Foreign Investment. They responded 2 days later, on May 18. I do not know whether that was a deadline or not.

Mr. MILLS. It was.

Mr. NIEHUSS. On May 22d, there was a meeting with—at the Assistant Secretary level, with Hercules, and SEMATECH. Nippon Sanso was not present. On May 24, a request to SEMATECH for information was made in response to some questions which arose out of the May 22d meeting. They responded on May 29th. Then again, on June 28th, there were additional questions to SEMATECH. They responded on July 4th.

So that is the reason that we say that SEMATECH had an ample opportunity to present its views to the committee. And there were lots of telephone calls in between. It was not a closed process to SEMATECH, and I think the record shows that.

Senator GORE. Mr. Canner, did the staffs of any of the agencies involved in the CFIUS process request permission to make site visits to either Semi-Gas or SEMATECH as a part of this investigation?

Mr. CANNER. Mr. Chairman, when we came to the issue of a site visit, and we have that—

Senator GORE. Now, let me interrupt you before you proceed, Mr. Canner. I want you to know that in light of our earlier exchanges, I want you to speak slowly so I can listen very carefully to the nuances of what you are saying.

Mr. CANNER. Certainly. I am not trying to nuance it. I am trying to answer you directly.

Senator GORE. Okay, let me repeat the question. Did the staffs of any of the agencies participating in the CFIUS review of this proposed sale request permission to make site visits to Semi-Gas and/or SEMATECH as part of this investigation?

Mr. CANNER. The CFIUS staff representative from the various agencies did not request a site visit. It is possible, and I, indeed I believe that within individual CFIUS agencies there may have been requests to their CFIUS representative for a site visit.

But when we get together and we try to decide these types of issues—what do we do, what types of questions—in terms of running a committee and interagency process, obviously we have to look to the staff representative. And no staff representative from no agencies, including the Department of Commerce, including the Department of Defense, requested a site visit.

Senator GORE. Okay, now, Mr. Canner, let me, let me repeat the question, and I want you to answer it carefully, because I believe you know the answer to this question. I do not believe you are uncertain in your mind about it. I believe you know the answer to this question and I would like you to provide the answer to the committee.

Did any staffs within agencies participating in the CFIUS process request permission to make site visits to Semi-Gas or SEMATECH during the conduct of this investigation? Yes or no, and then you may elaborate.

Mr. CANNER. Thank you. It is my understanding that some staff members within the Department of Commerce requested a site visit. As I said, in running the committee, an interagency process, we have to be guided by what the CFIUS staff representative, not what Mr. Smith in this division or Mr. Jones in this part of a particular agency wants to do, but what the CFIUS staff representative, who is authorized by their Assistant Secretary to speak for that CFIUS agency, wants to do.

The only way you can run a committee efficiently is by having one voice speak for each agency. The CFIUS staff representative of Commerce did not ask that.

Senator GORE. Okay. Who is the CFIUS staff representative for Commerce?

Mr. CANNER. Mr. Eberhart.

Mr. MCBRIDE. The working level staff member is Mr. Richard Eberhart. The Assistant Secretary for Trade Development is the representative of the Department of Commerce on CFIUS. That would have been my predecessor. I do not know if he attended the meeting which Mr. Canner refers to.

Senator GORE. Who within the Commerce Department staff did request permission, Mr. Canner?

Mr. CANNER. I believe it was someone from the electronics division of the Commerce Department, from their industry division.

Senator GORE. That would make sense. But if you could provide for the record those names, I would appreciate that.

Do you think we might have learned anything from a site visit?

Mr. CANNER. Mr. Chairman, our experience with site visits was mixed. We had two, and we felt that in as much as Semi-Gas brought its technology to the entire CFIUS, we provided a good opportunity for all members of CFIUS to understand the technology, the computerized monitoring system, the purification process, as compared to a situation of one or two individuals having different

views going out and trying to report back to the committee. So we think we did the right thing.

Senator GORE. Are there any engineers on CFIUS?

Mr. CANNER. Members of the staff who participate in the CFIUS process, some of them have engineering degrees, yes.

Senator GORE. I had heard rumblings that CFIUS—that the staffs of the agencies involved here had tried to make a site visit. I did not know that it was the Commerce staff. Mr. McBride, did you know that the Commerce staff had asked to make a site visit?

Mr. MCBRIDE. In preparing for this hearing, I was made aware that there was an interest on the part of the science and electronics division to have a site visit, and I believe there may have also been interest on the part of BXA, the Bureau of Export Administration, for a site visit. I do not know why that wish would not have been represented to the CFIUS.

Senator GORE. Do people in those circumstances—let us say the CFIUS is meeting to review a sale, and the people with knowledge of why a sale would have implications look at it and say, well, I think a site visit is needed here. Do they have to get permission from anybody to make a site visit?

Mr. MCBRIDE. Well, that would be coordinated by CFIUS and that wish, I believe, in my limited understanding of the process, would be directed and would be expressed through the CFIUS representative at that time. So I do not know if that wish was expressed or not.

Senator GORE. Mr. Canner, were any such requests specifically directed to you?

Mr. CANNER. Not by the Commerce CFIUS staff representative, sir.

Senator GORE. Okay, let me rephrase the question.

Did any request come directly or indirectly through the Commerce CFIUS representative or from any other human being on the face of this particular planet to you?

Mr. CANNER. Mr. Chairman, Senator, we do not keep a verbatim text of all of our discussions. I am sure that there—when I said that I believe it came from the electronics representatives, he probably said something to the effect that I think we should go to the site—we should go and have a site visit.

The way the committee operates, if I may back up for a minute—

Senator GORE. No, no, please—

Mr. CANNER. Well, then I, you are taking it out of context, sir.

Senator GORE. Did you deny permission for such a site visit?

Mr. CANNER. I asked the Commerce representative to CFIUS, does Commerce want to have a site visit? He told me no.

Senator GORE. Mr. McBride, did you, then, or your predecessor, take the responsibility for denying a site visit in this case?

Mr. MCBRIDE. Mr. Chairman, I do not know the answer to that, but I would look into that and provide the subcommittee with an answer to that question.

Senator GORE. I appreciate that. Why are these gases important, Mr. Mills? It sounds a little vague to somebody who is not a scientific expert, as I am not. Why is this particular technology so vital to the success of SEMATECH?

Mr. MILLS. There are over 200 specialty gases used in the semiconductor manufacturing process, Mr. Chairman. The distribution system and cabinetry required to house those 200 different gases is elaborate.

As line widths in future generation semiconductors become smaller and smaller—and size is the essence in the electronics industry. The smaller the size, the greater the computing power, et cetera. As size becomes narrower and

¹ The information was not received at press time, February 14, 1991.

narrower, the purity of those gases is absolutely essential to achieve competitive yields with the Japanese, specifically.

So it is a matter of furthering the ability, as we have the capability, to etch smaller line widths. That could all be destroyed by a single half-micron speck of impurity in any gas. So the ability of gases to be absolutely pure in this process is essential.

Senator GORE. So there is a link between gas purity and advances in semiconductor performance in mass production?

Mr. MILLS. Unquestionably.

Senator GORE. And there is a link between semiconductor performance in mass production and the future of the American advanced electronics industry?

Mr. MILLS. Unquestionably.

Senator GORE. There is further a link between the future of the American advanced electronics industry and U.S. weapons development?

Mr. MILLS. Yes, sir.

Senator GORE. Do you agree with that, Dr. Herzfeld?

Dr. HERZFELD. I certainly do, and if I do my job, that link will be alive and well.

Senator GORE. It was, I guess, partly for that reason that the Congress and the President in signing the law declared the national security interest in the success of SEMATECH. SEMATECH, for reasons just explained, has said the sale of Semi-Gas poses a serious threat to the success of SEMATECH. Yet none of this, seemingly, affected the decision in this case.

Are there, Dr. Herzfeld, other proposed sales in the pipeline right now?

Dr. HERZFELD. I really do not know, sir.

Senator GORE. Do you know anything about the Moore machine tool firm of Connecticut, which makes high precision machine tools for our nuclear weapons program?

Dr. HERZFELD. No, sir.

Senator GORE. Mr. Rudman, do you?

Mr. RUDMAN. In the context of an export license I discussed this with another part of the Commerce Department a few weeks ago. I am aware that there is, I believe—and I may be wrong, but I believe there is a Japanese takeover.

Senator GORE. Do you have knowledge of this, Mr. Niehuss?

Mr. NIEHUSS. Yes. It is before the committee. A notification has been filed, and it is still within the 30-day period. Then the committee will need to make a decision as to whether we go to a full investigation.

Senator GORE. I see. Are you familiar with the Barden FAG Company of Danbury, Connecticut?

Mr. NIEHUSS. I am not.

Senator GORE. Are you, Mr. Canner?

Mr. CANNER. The name does ring a bell, sir, yes.

Senator GORE. It is, I am told, the Navy's sole source of certain ball bearings for nuclear submarines. Does that ring a bell, also?

Mr. CANNER. That has been notified to the committee, sir. It is within the initial 30-day review period.

Senator GORE. Is there a Defense Department position on that sale, Dr. Herzfeld?

Dr. HERZFELD. Not yet, as far as I know.

Senator GORE. Mr. Rudman?

Mr. RUDMAN. Not yet, sir.

Senator GORE. Okay. Here we have what we are told is the Navy's sole source for critical ball bearings in the nuclear submarine program. Ball bearings do have

some relevance to quieting of submarines, and a foreign takeover of this firm is proposed. How far into the 30-day period are we, Mr. Canner?

Mr. CANNER. I believe we are about half-way through, sir.

Senator GORE. So we have got a couple of weeks left and the Defense Department still does not know about it?

Mr. RUDMAN. Excuse me, sir, we do know about it. We have farmed out the request to all relevant DOD components and are getting the answers back. It is a 30-day process. It takes a few days, naturally, for it to get through Treasury to us, out to the components for them to make their input, and for them to get back to us, so we can come out with a position. We will be on time, sir.

Senator GORE. Are we in the 30-day period on the Moore machine tool firm case?

Mr. CANNER. Yes, sir.

Senator GORE. Are we also about half-way through that?

Mr. CANNER. A little bit more than two-thirds.

Senator GORE. So there is about a week left?

Mr. CANNER. A bit more than that, sir.

Senator GORE. 10 days?

Mr. CANNER. Roughly, yes.

Senator GORE. You still do not know about that, Mr. Rudman?

Mr. RUDMAN. We are getting the comments in, sir, and we will be on time. We cannot comment on it before we have a position.

Senator GORE. Okay.

Dr. HERZFELD. We know about it, but no official DOD position has been formulated on these cases yet. I am sorry we were not clear about that.

Senator GORE. Believe me, I can understand how you might not know everything that your staff knows, but I had asked you earlier whether you knew about this case, and my memory is that you had both said no, you did not.

Mr. RUDMAN. No. What I had said is, it had come to my attention in another context, in an export license context. My staff had received it also in the CFIUS context. It will come to me, as it normally does, within a very few days.

Senator GORE. Well, I can certainly accept that, but it seems to me that the entire administration is taking an unbelievably lackadaisical view of the entire CFIUS process, and essentially leaving it to Mr. Canner, at his level, to basically approve 459 out of 460 cases that come before the committee. You are not just a mailbox, are you, Dr. Herzfeld?

Dr. HERZFELD. No, sir, and I would certainly not agree with your characterization of that. I think improvements in any process are possible, and desirable, but the decisions on whether to go the full investigation, or whether to recommend rejection, are made at a high level. I have not been involved in earlier cases, because I was not on the board before. I am going to be involved, any day now, in the cases you mentioned, but I do not see any great point in my becoming involved before the staffs do their work. I would prefer to deal with the facts.

Senator GORE. But again, 459 out of 460 cases have received approval.

In this particular case, Semi-Gas, you testified, Mr. Niehuss, that the investigation was far-reaching, and yet this far-reaching investigation did not include any prior inquiry to SEMATECH about the viability of a confidentiality agreement. How could that be a far-reaching investigation, if you were not even curious about SEMATECH's views as to your ability to protect the proprietary information involved?

Mr. NIEHUSS. Well, I do not think they are inconsistent, Mr. Chairman. I think SEMATECH did know of a possibility of a confidentiality agreement as early as May 23, and as you said earlier, where there is a will, there is a way. Had

SEMATECH been interested in entering into a confidentiality agreement, had been creative and cooperative, they could have used the existing procedures which are established by the Department of Defense to effectively wall off the SEMATECH personnel.

Senator GORE. Mr. Mills?

Mr. MILLS. I guess my first notification of any discussion about a confidentiality agreement was the July 30 "Wall Street Journal." Mr. Canner called me—or, excuse me. He wrote me a letter on August 20 that basically indicated that in fact there was a confidentiality agreement that Nippon Sanso had presented to CFIUS and that we ought to get a look at that, and so the timing of that was—I guess I would differ on the timing.

Mr. NIEHUSS. Well, Mr. Chairman, as I pointed out earlier, neither the buyer nor the seller is represented here at this hearing, and if the committee is really interested in getting the facts——

Senator GORE. Mr. Niehuss, we appreciate your suggestions on how to conduct the investigation, and I assure you we plan to continue the investigation, but on this particular point, we have a direct contradiction between two witnesses before the committee. Did you ask SEMATECH for its views on whether or not a confidentiality agreement was workable in this case?

Mr. NIEHUSS. We did not ask that question, but our understanding—and this is why I think it is important to have the other parties to the transaction—is that an approach was made by Nippon Sanso or Matheson to SEMATECH as early as May 23 to discuss a potential confidentiality agreement.

Senator GORE. So you are going to leave that part of your far-reaching investigation to the Japanese?

Mr. NIEHUSS. No, no, SEMATECH and Semi-Gas had an existing confidentiality agreement that covered the license which SEMATECH had from Semi-Gas. It was our assumption that, having already established the beginnings of a confidential relationship, that it would be an easy step for SEMATECH and Semi-Gas to adapt the time-honored procedures of the Department of Defense for classified work to this situation.

Senator GORE. Mr. Mills, could you comment on that?

Mr. MILLS. Well, again, our concern in all of this is really the process. I think it goes beyond the Semi-Gas issue. As I testified in August, we felt that—although we were not party to the transaction, we felt that, representing the United States, we had a vested interest in determining how to best protect the information that we were seeking to protect.

The problem with the agreement which Mr. Canner sent to me later in September was that it really was based upon classified or export-controlled information, which is not applicable to what we are dealing with. And that—the concern we have, is that, the process should be open. Why the secrecy? Let us put all the—you know, all of the plans up on the table so we can be all accountable for it.

Again, our information that we seek to protect is intellectual property and joint development efforts that go far beyond the five people at SEMATECH on the Semi-Gas team. It is software development, it is equipment design. It goes on well beyond the reaches of the SEMATECH walls.

So when we got a look at that agreement in September, mid-September, we found that it was inadequate. And my point, had we had the opportunity to participate in the development of that, of that arrangement, it may have been a better document.

Mr. NIEHUSS. Mr. Chairman, all I can say is we do have a factual dispute. The records that we have indicate that SEMATECH was contacted by Nippon Sanso

as early as May 23d with an offer to sit down and try to negotiate a satisfactory confidentiality agreement.

Senator GORE. No, but the question—

Mr. NIEHUSS. And without getting other parties here, we just have to leave it that there is a disagreement on the facts.

Senator GORE. Well, no, I do not think there is a disagreement on those facts. But how appropriate is it for you to satisfy your need for an investigation by saying that the potential Japanese purchaser had contacted SEMATECH?

If you had known for certain that the confidentiality agreement that Nippon Sanso was proposing was entirely inadequate to allow Semi-Gas to continue as a part of SEMATECH or to protect the proprietary information residing within Semi-Gas, if you had known that was the case, would you have still recommended approval of the sale?

Mr. NIEHUSS. Had we known that it was totally inadequate?

Senator GORE. Yes.

Mr. NIEHUSS. I cannot answer that question. I would have to poll the committee and see what their views were.

Senator GORE. Would your personal view have been different?

Mr. NIEHUSS. The fact of the matter is that these agreements have been used for years to protect the most highly classified defense contract arrangements, and it seems inconceivable that professionals like SEMATECH and Nippon Sanso, with their lawyers, could not come to an agreement on a confidentiality agreement that would protect not only the five people but the intellectual property that Mr. Mills was talking about.

Senator GORE. What motivation would Nippon Sanso have to successfully conclude such a negotiation?

Mr. NIEHUSS. Well, in the first place, they have some legal obligations to SEMATECH by virtue of the existing confidentiality agreement that they have with them, and it is my understanding that they have indicated to SEMATECH that they intend to fully honor that agreement. So they have an incentive to cooperate so they will not be subject to a commercial law suit.

The other incentive is that they have stated their intentions to do that, to CFIUS. It is a part of the record. And as Mr. Canner indicated earlier, if they do not carry forth on their intentions, it would be possible for CFIUS to reopen the transaction. So they have a great incentive to make good on their stated intentions.

Senator GORE. Mr. Mills?

Mr. MILLS. You know, the real issue here is if we were going to use Semi-Gas for nothing more than as a supplier of specialty gases and gas cabinets, you know, then maybe a defense contractor kind of agreement could work. But the fact of the matter is that is not our charter, that is not the relationship we have with Semi-Gas, period.

What we are interested in doing is developing robust, healthy, infrastructure suppliers to our member companies. And so, you know, building fences and walls—again, this is not, these are not wafers that are being dropped off at the loading dock. The purpose of the relationship is for the development of future generation capability, and doing that for foreign-owned firms is just not within SEMATECH's charter. We are not going to use the money that you folks provide us with, in concert with our member-company funding, to develop Nippon Sanso's ability to increase market share.

Senator GORE. Do you understand that, Mr. Niehuss?

Mr. NIEHUSS. Yes, sir, I do.

Senator GORE. Does that matter to you?

Mr. NIEHUSS. Yes, it, it does matter, Mr. Chairman. And you made a statement which I thought was a little bit incorrect, when you said that SEMATECH's concerns were not considered at all in the CFIUS process and had no effect on the decision, and that is simply not true.

Senator GORE. I do not think I——

Mr. NIEHUSS. You did say that. And——

Senator GORE. I am referring to the confidentiality agreement. You did not ask SEMATECH for its views as to whether a confidentiality agreement of the kind proposed by Nippon Sanso was viable. And yet, in the complete and total lack of that inquiry or the answer to the inquiry, you assert that the investigation of this matter was far reaching. I do not see how you can describe it as far reaching.

We have on the record the fact I just mentioned, that you did not even ask SEMATECH about whether the confidentiality agreement was viable or adequate. Mr. Canner denied permission for technical people who wanted to conduct a site visit to go for a site visit. The technical process used was that he bounced it off some staff guy over at Commerce, but the essence of that transaction was that Mr. Canner said, no, we do not want you to go there.

And the sum total is that there was not a will to make this work, and if the other 458 cases that have been approved were handled the way this one was, then no wonder they were approved. And with all due respect, Mr. Canner, if people who are concerned about a proposed sale have as much trouble getting information out of you as I do, then the dialogue and the communication between CFIUS and the agencies that are charged with the national interest here, that communications process cannot be a very effective one.

Here we are in a dispute about whether or not SEMATECH was contacted and when or whether or not they were asked for information directly relevant to the considerations by CFIUS in this case. Maybe you thought that you had asked them. I do not know.

But the long and short of it is that the semiconductor industry in the United States is important to the future of this country. The Congress has recognized that importance in part by establishing SEMATECH. 50 percent of the money comes from the taxpayers, 50 percent from U.S. electronics firms. The principal competitor that it is defending against is the Japanese industry.

It comes up with a success story, Semi-Gas, which opens up a 2-year lead on any comparable Japanese company. The biggest Japanese company comes in and says, oh, well, we will just buy this little company, that is a good way to stop any competition there. But their lawyers say, well, wait a minute, you have got to ask permission from the White House because the Congress says this has national security implications, or may have, and the White House has to review it.

You know what I think their lawyers said after they looked at the record? I think they had a big horse laugh. They said, oh, we will take this over to Mr. Canner and the others on the CFIUS committee, because they had approved 459 out of 460 of these applications. That process is just a big joke, the way the administration is running it. We do not have to worry about that. I will tell you what, we will tell Mr. Canner and Mr. Niehuss and the others that we will work it out on our own with SEMATECH, do not worry about that. Hah, hah, hah. And we will xerox some old agreements and show them that it has been possible in other circumstances in the past, so we do not have to worry. We do not have to worry.

If they had had that reaction, it would have been justified because that is the way this process was handled, in my personal opinion. And after reviewing the way the details of this played out, in this hearing today, I am appalled that we

would allow a company nurtured and brought to success for the specific purpose of competing against the Japanese to be purchased by the Japanese.

Even though the President's science advisor—evidently—we do not have the communication, because memories are a little vague—even though the President's science advisor reportedly has expressed concerns about it, even though the consortium established by the Government to handle this manner expressed violent objections to it, even though the principals in the company to be purchased were trying desperately to put together their own financing and get a little more time to succeed in it.

I just find it absolutely incredible. And I am going to recommend that our committee continue to examine this matter thoroughly. I would like to get that letter from the President's science advisor. I would like to get the views of these people who wanted to make a site visit, the technical people in other departments who examined this. And we will be back in touch with you on all these matters.

This has been a contentious hearing today, and I would like to supplement it with questions from the record, questions for the record. I hope that all of you will be willing to respond further to questions in writing.

[The information referred to follows:]

ACQUISITIONS FROM FOREIGN-OWNED SOURCES

Question. Please provide a general estimate of the percentage of electronic components used in U.S. weapon systems for which DoD is now totally or nearly totally dependent on foreign-owned sources.

Dr. Herzfeld. The DoD does not track the origins of all the electronic components that are used in military systems because of the complexity and enormity of the task. There are thousands of different electronic components used in hundreds of different electronic systems and end items that are manufactured at various locations throughout the globe and are isolated from direct government insight by several tiers of subcontracting. Most large U.S. electronics components manufacturers have various elements of their manufacturing processes located in different countries that may specialize in a particular process or component. According to an electronics industry information service, the vast majority of semiconductors used in military and aerospace systems are being supplied by U.S. owned firms. However, this does not mean that the components are actually manufactured

in the U.S. *Question.* When a firm is the last American-owned supplier for a given type of component, what assurance, if any, does DoD seek from a foreign buyer in order to guarantee either continued production within the U.S. or timely access to foreign-made components? How are any such assurances monitored and enforced?

Dr. Herzfeld. The Committee on Foreign Investment in the U.S., or CFIUS, reviews and acts on the kinds of issues just described. The DoD is a member of the CFIUS and has expressed concerns regarding specific proposed sales of U.S. industries considered to have national security implications. For example, the proposed purchase of the General Ceramics Company by a Japanese firm would have involved access to nuclear weapons materials. As a result of national security concerns, elements of the acquired firm that were sensitive were removed from the sale. In another case, the Huels Company of Germany signed an agreement that addressed several concerns raised by DoD regarding their proposed purchase of Monsanto Electric Materials Company and assuring continued access to products from that company. There is no formal agreements.

Question. Please describe the relationship between the Barden Company and the Navy. Is it true that the Navy went to Barden and asked it to manufacture certain bearings for the submarine fleet because foreign suppliers were not reliable? Has the Navy made a substantial investment in Barden's bearing manufacturing operation? If so, does the DoD want to see bearing production fall back into foreign hands?

Dr. Herzfeld. In this particular instance, U.S. firms that had been producing silent bearings for Navy submarines were being forced, via competitive pressures from off-shore, to drop out of the market. After the domestic sources were no longer producing these specialized bearings, the Navy began experiencing delays and price increases. The Navy concluded that a domestic source should be reintroduced to ensure a mobilization base and went out on a competitive contract to domestic bearing manufacturers for a large number of submarine bearings. The Barden Company won the contract and some number of submarine bearings were procured and stockpiled. The DoD has reviewed the purchase of the Barden Company by the FAG Bearing Company of Germany. FAG is a leading bearing producer with production capability in the U.S. and Canada which provides bearings to the DoD. FAG has given verbal assurances that it intends to make Barden a stronger bearing company and agrees to notify the DoD of any changes that would impact defense.

Senator GORE. I started to say it has been a contentious hearing. The reason is there is a direct conflict between the views of the Congress and, I believe, of the American people on the one hand, and the views of the Bush administration on the other hand. When Congress established this law, it had no idea that the law would be subverted by what I believe is a lackadaisical implementation of the law and what I believe is an obsequious approval of virtually anything that these foreign purchasers ask for.

Now, I have expressed strong views, and I do hold very strong views on this matter. I think they are justified in this case, absolutely justified. And we will continue to pursue this, but for now the hearing will stand in adjournment.

[Whereupon, at 12:35 p.m., the hearing was adjourned.]

[The following information was subsequently received for the record:]

THE WHITE HOUSE

WASHINGTON

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WHITE HOUSE LIAISON

August 14, 1990

Dear Don:

The possible sale of Semi-Gas to Nippon Sanso prompts me to write to you about what appears to me to be a growing problem.

Semi-Gas has benefitted substantially from its close working relationship with SEMATECH and in effect holds a wide range of cutting edge technologies that have been developed with SEMATECH with joint federal-industry support. These technologies are critical in many cases to frontier production of integrated circuits and semiconductor devices generally. If the sale proceeds to completion these technologies, and perhaps equally important - the hands on know-how involved, will be available to the Japanese.

It is my understanding that when the parent company of Semi-Gas, Hercules Inc. decided to sell, there was a U.S. buyer but that Hercules selected Nippon Sanso because its offer was \$25 rather than \$18 million. I would argue that DARPA has contributed more than this difference to the value of Semi-Gas through its support of SEMATECH.

This transaction went before the Committee on Foreign Investment in the U.S. (CFIUS) and was approved - as indeed have almost all other transactions considered by CFIUS. I am concerned that the Committee appears to treat each such transaction in isolation and does not take into account the cumulative effect of these incremental actions on the entire US posture in the industry involved. Our technology base can be nibbled from under us through a coherent plan of purchasing entrepreneurial companies - many of whom have been assisted, either directly or indirectly, by the Federal Government in developing their particular technological strength.

If you share my concern about CFIUS taking this incremental approach, I would welcome an opportunity to discuss with you how we might best address the issue.

In the specific case of Semi-Gas and Nippon Sanso, I am told that the combined company would control a major fraction of the world market in its specific area and SEMATECH has requested the Justice Department to consider the anti-trust implications of the sale. I have discussed the matter briefly with Boyden Gray but do not know as yet how the matter will be resolved.

I shall look forward to hearing from you. With warmest regards.

Sincerely,

D. Allan

D. Allan Bromley
Assistant to the President
for
Science and Technology

The Honorable Donald Atwood
Deputy Secretary of Defense
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cc:

Mr. Thomas Murrin
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